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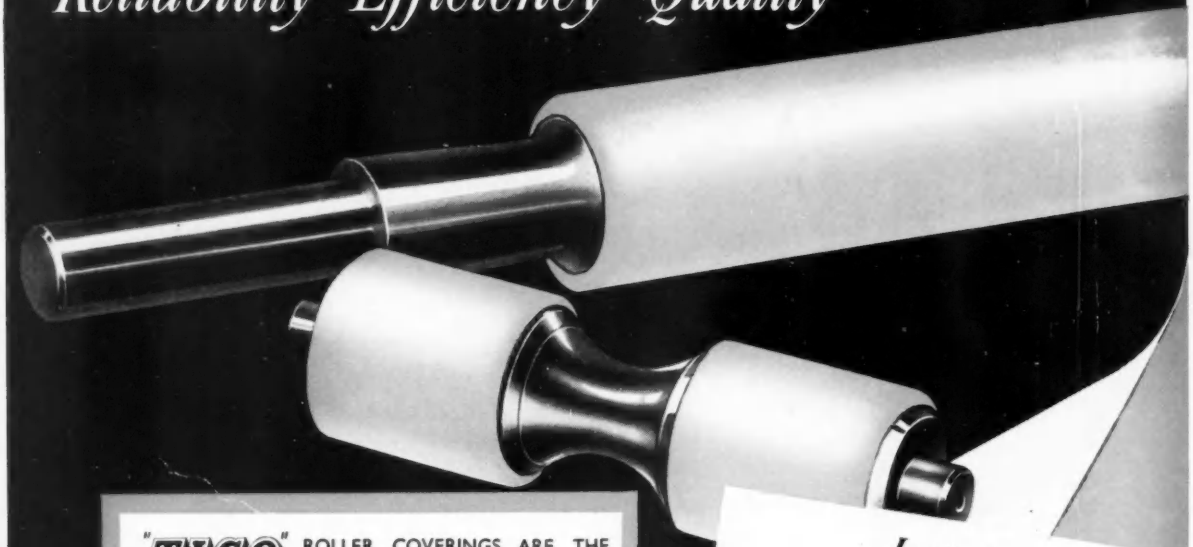
Textile Machinery and Accessories Exhibition

SUPPLEMENT TO

THE TEXTILE MANUFACTURER

October 1958

Reliability · Efficiency · Quality



"TICO" ROLLER COVERINGS ARE THE BEST BECAUSE :
(1) THE MATERIAL FROM WHICH THEY ARE MADE IS SUBJECT TO CONSTANT RESEARCH AND TEST.
(2) THEY ARE GROUND TO PRECISION LIMITS WITH PERFECT SURFACE FINISH.

Install
TICO
ROLLER COVERINGS

TICO ROLLER COVERINGS offer these practical advantages

- *PERFECT CONCENTRICITY*
- *GREATER FIBRE CONTROL*
- *BETTER DRAFTING*
- *LONG EFFICIENT LIFE*
- *REDUCED END BREAKAGES*

TEXTILE INDUSTRIAL COMPONENTS LTD
HEAD OFFICE
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Phone : WYThenshawe 3458-9
are the sole manufacturers of TICO Synthetic Roller Coverings for the COTTON, WORSTED, JUTE & ALLIED INDUSTRIES, TICO Anti-vibration Pads and certain loom accessories. Our Technical Advisory Department is at your service.

AGENTS FOR THE COTTON INDUSTRY:

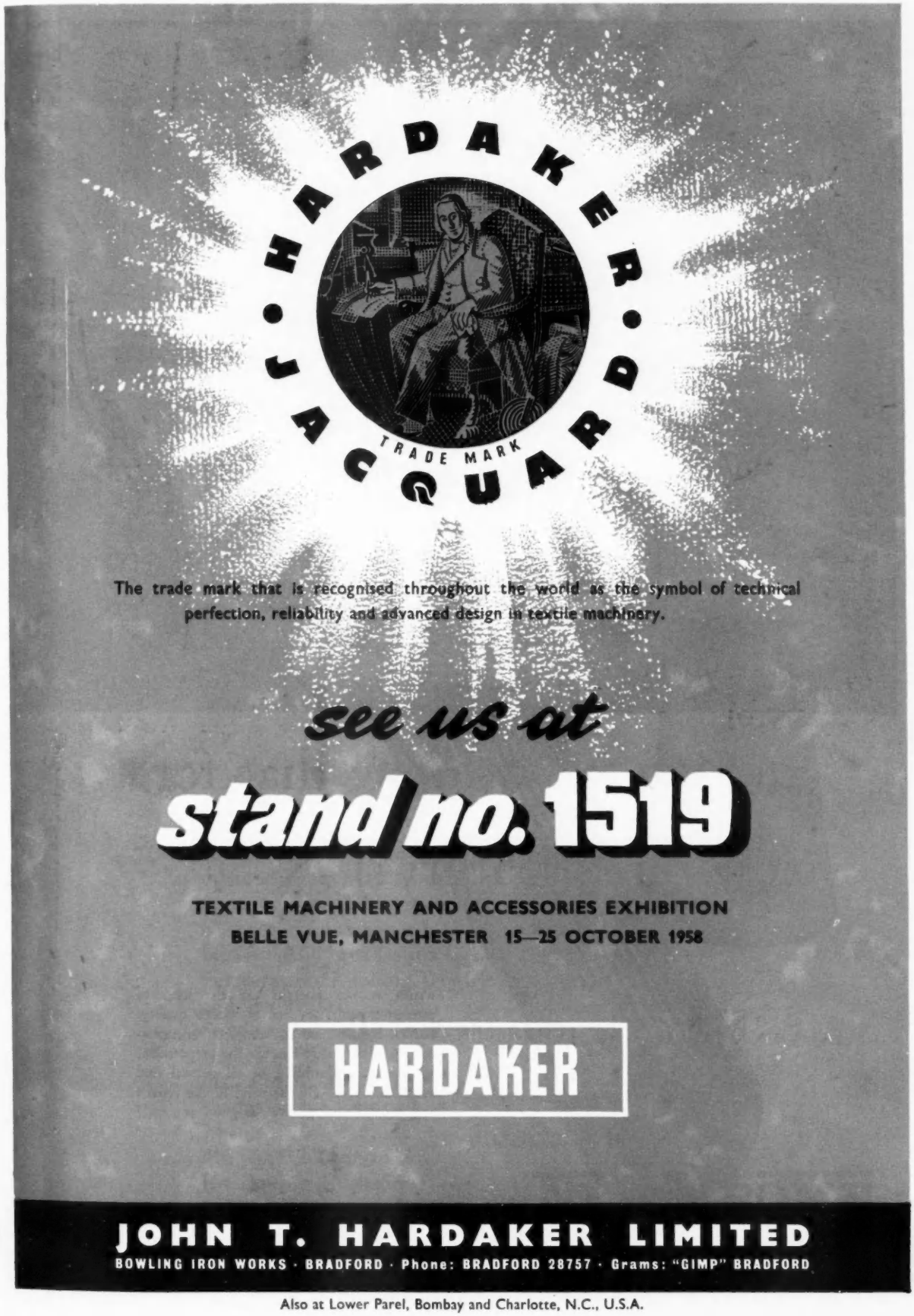
SYNCOT (ROLLERS) LTD

SHEPHERD CROSS STREET, BOLTON, Phone: Bolton 7980

OFFICE & WORKS FOR THE WOOLLEN & WORSTED INDUSTRY:
TEXTILE INDUSTRIAL COMPONENTS LTD
TICO WORKS, 21 UNION ROAD, LOW MOOR, BRADFORD, Phone : Low Moor 565

AGENTS FOR JUTE & ALLIED INDUSTRIES:
HUGH G. FYFE, 10 PANMURE STREET, DUNDEE
Phone : DUNDEE 2892

* **Yarn produced on Tico covered rollers stands up to expert examination.** ***(Photo by courtesy of Rugby Mill Ltd., Chadderton)***


HARDAKER
JACQUARD
TRADE MARK
The trade mark that is recognised throughout the world as the symbol of technical perfection, reliability and advanced design in textile machinery.
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TEXTILE MACHINERY AND ACCESSORIES EXHIBITION
BELLE VUE, MANCHESTER 15—25 OCTOBER 1958
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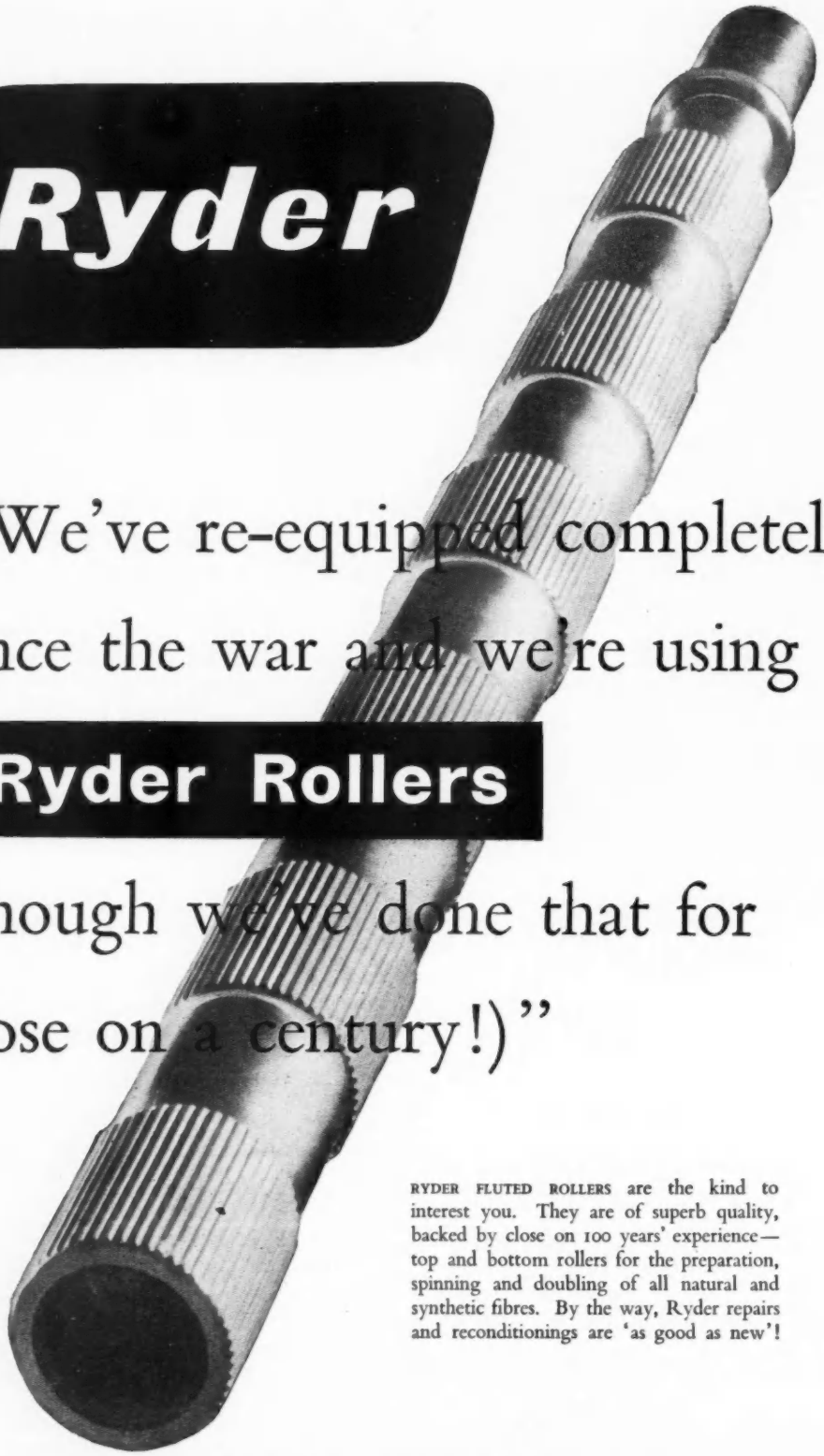
JOHN T. HARDAKER LIMITED
BOWLING IRON WORKS · BRADFORD · Phone: BRADFORD 28757 · Grams: "GIMP" BRADFORD
Also at Lower Parel, Bombay and Charlotte, N.C., U.S.A.

Ryder



"We've re-equipped completely since the war and we're using

Ryder Rollers

(though we've done that for close on a century!)"

RYDER FLUTED ROLLERS are the kind to interest you. They are of superb quality, backed by close on 100 years' experience—top and bottom rollers for the preparation, spinning and doubling of all natural and synthetic fibres. By the way, Ryder repairs and reconditionings are 'as good as new'!

THOMAS RYDER & SON LTD · TURNER BRIDGE WORKS · BOLTON · ENGLAND · BOLTON 5086

ALSO MANUFACTURERS OF VERTICAL MULTI- & SINGLE-SPINDLE AUTOMATICS
FORGING MACHINES · BABBITTING MACHINES · PISTON RING LATHES

Colour is of consequence!

Use Neochrome—a rayon produced in colours during the spinning process. The dyestuff penetrates to the very core of the filaments, producing a solidity and fastness of shade unobtainable by other means.

NEOCHROME is fast to Light, Laundering, Perspiration, Rubbing, Dry Cleaning, Bleach and Sea Water.

Supplied as Warp, Weft and Cone in 80 shades in 150 den. 31 fils., and in about 30 shades each in 100 den. 24 fils., 200 den. 36 fils., and 300 den. 52 fils., and in 10 shades in 750 den. 120 fils.

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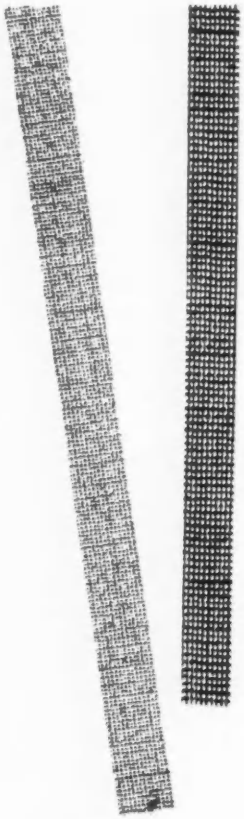
PARKSIDE MILLS · GOLBORNE · LANCASHIRE *'Phone · Golborne 281. 'Grams . "Harbens Golborne, Warrington."*



The formula for perfect weaving

CROWN MICRO SHAVE + SATIN

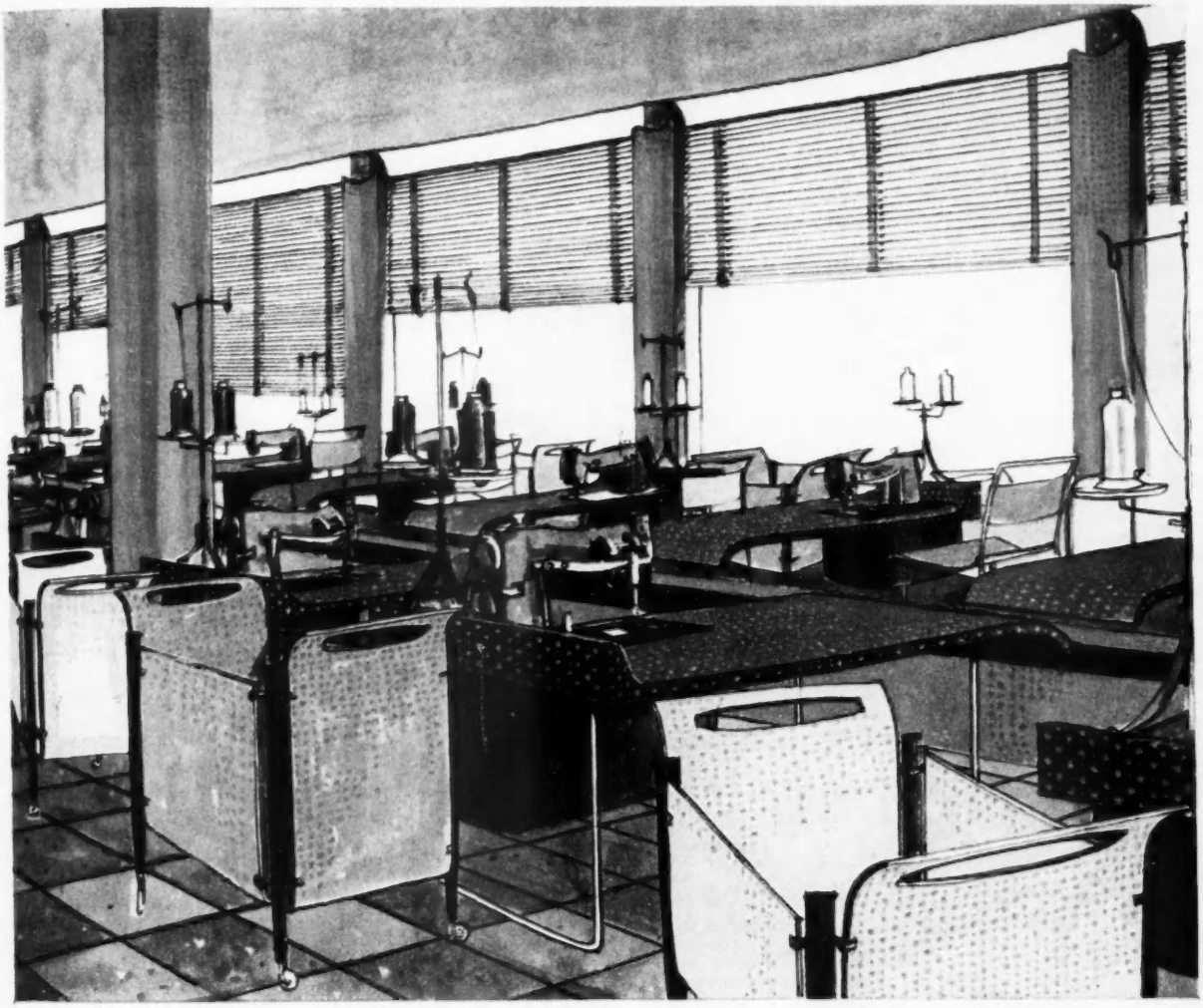
LUPTON BROS. LTD. have developed an entirely new patented weft cutting temple, THE CROWN MICROSHAVE, which follows the cloth width variation and cuts right up to the selvedge. Fitted in conjunction with THE CROWN MICRO-SATIN Temple Barrel the perfect combination for templing and cutting is achieved.

The new CROWN MICROSHAVE, together with an extensive range of Springs, Accessories and Temples actually working are ready for your inspection on

STAND 1019

LUPTON BROS. LTD. ACCRINGTON, ENG.

FORMICA*



CURVED SURFACES!

Formica Ltd have now perfected a development of great value to you! This is the new post-forming process, by which FORMICA decorative laminates can be shaped into curves to your design requirements.

Look at the picture above. You will get an idea of some of the possibilities if you refer to our picture. The qualities of FORMICA laminates generally—their hardness, smoothness, cleanness and ease of cleaning—are by now well known. The curvature of FORMICA surfaces lends, at the same time, new grace and new efficiency to design. Details of equipment or broad architectural features can all benefit. Pillars can be clad in any shape required. Wall panelling can be neatly rounded at corners . . .

Get in touch with us! Most qualified contractors are conversant now with the simple techniques involved. For fuller information, and full sample range, write to us at the address below.

FORMICA—the finest of all the decorative laminates

*FORMICA *is a registered trademark. Formica Ltd, Trade Post-forming Enquiries, De La Rue House, 84/86 Regent Street, London W1*

We do hope that you will visit our Stand No. 1204 at the Manchester Exhibition, where we shall be showing our latest High Production Rectilinear Combing Machine, PB25L, for wools and synthetics, fed by cans or balls, also our High Production Intersecting Gillbox, type GN1B, delivery on one single end ball, and our latest Ring Spinning Frame, type CF221

WORSTED COMBER
PB 25 L

COMBING, DRAWING AND SPINNING MACHINERY

for

WORSTED, RAYON STAPLE AND SYNTHETIC FIBRES

FLAX TOW COMBS

ESTABLISHED 1808

N. SCHLUMBERGER & Cie

GUEBWILLER (HAUT-RHIN) FRANCE TEL 750 (8 lines

Sole Representatives for United Kingdom and Republic of Ireland :

H. R. CARTER & SONS LTD., Saxone House, Donegall Place, BELFAST, Northern Ireland. Tel: Belfast 28424 (4 lines)

new lap resistant cot...
drafting advantages

All Weather Dayco EW 661 Cot draws uniformly, despite extreme "dog day" heat and humidity.

Completely new EVERGREEN compounds give you these vital features:

1. Improved drawing of *all* fibers—especially synthetics
2. Stays dry—won't sweat
3. Never becomes sticky
4. Won't adhere to fibers during shutdowns

Amazing surface action of newly developed EVERGREEN compounds assure you practically lap-free spinning every day of the year. This NEW DAYCO Cot has proved itself lap resistant in *any weather* in actual mill tests. It never sweats nor becomes sticky, so the yarn can't slip nor adhere to the surface.

Even on mid-summer "dog-days" with heat and humidity zooming upward, the EVERGREEN compounds in the new DAYCO EW661 Cot run cool, draw yarn smoothly, evenly, virtually *without lap-ups*!

Your DAYCO Representative will be in to see you soon. He'll be glad to arrange for you to run a test frame of the all new DAYCO AP664 Aprons and the new all-weather DAYCO EW661 Cots as well as give you additional facts on these new, improved DAYCO *products*.

THE DAYTON RUBBER CO. LTD., LANCASHIRE SALES DIVISION
Sheffield Street, Heaton Norris, Stockport
Tel.: Stockport 3464

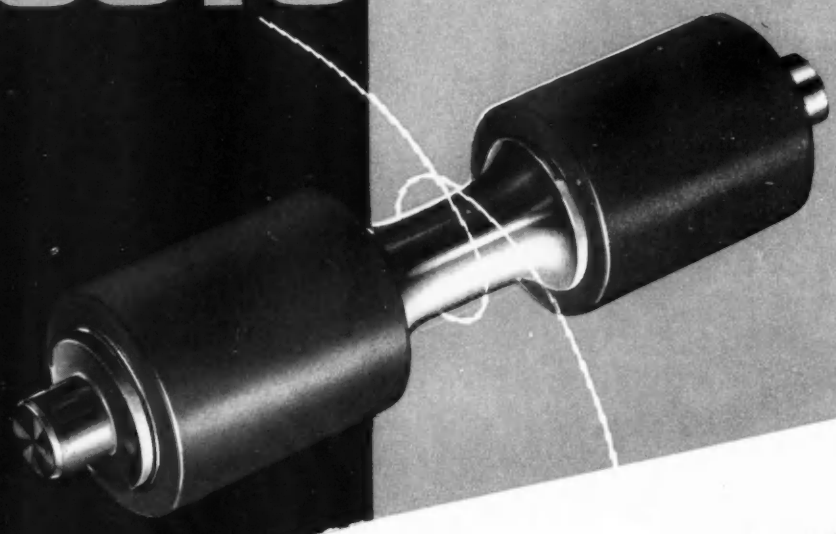
Manufactured by THE Dayton Rubber CO. LTD.
DAYTON WORKS - DUNDEE - SCOTLAND

DAYCO AND THOROBRED TEXTILE PRODUCTS FOR BETTER SPINNING AND WEAVING

GACOTS

TEXTILE ROLLER COVERINGS

PATENTED



Cut Spinning Costs

Gacots Textile Roller Coverings contain Surface Active Agents (British Patent No. 706,202). These ingredients prevent the build up of static electricity, thus preventing 'licking' and 'lapping'. The result is cleaner running, less waste and a general improvement in the finished yarn.

Angus research again leads the field in this development.

TECHNICAL SERVICE

Our staff of technical representatives are ready to visit your mill and make individual recommendations and provide follow-up assistance and advice.

ROLLER COVERING SERVICE

Gacots can be supplied to users in the United Kingdom, mounted and ground ready for immediate use, by our official agents and roller coverers :—

CLEGG & MELLOR LTD
WERNETH LEATHER WORKS
OLDHAM, Lancs.
TELEPHONE - MAIN 4085

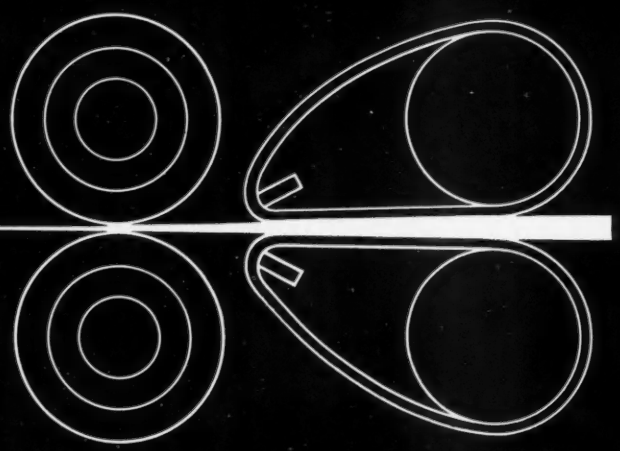
TEXTILE EXHIBI
BELLE VUE, MANCHE
SEE OUR EXHIBIT, STAND No.

GEORGE ANGUS & Co LTD

OIL SEAL DIVISION, COAST ROAD, WALLSEND-ON-

GACOTS High Draft Aprons

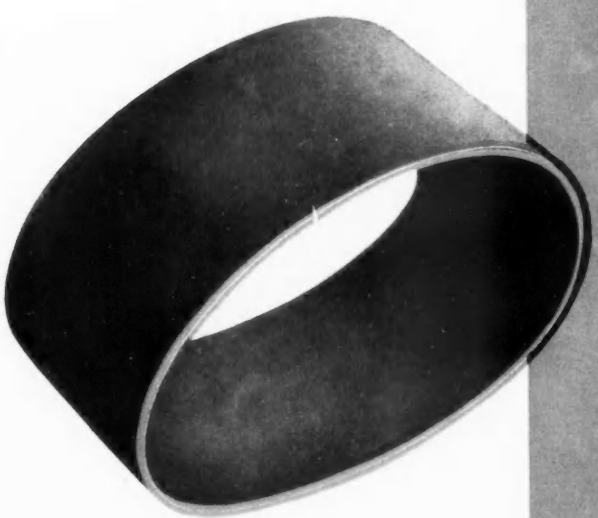
"PAT. PEND."



For Perfect Fibre Control

Gacots High Draft Aprons contain surface active agents for cleaner running and elimination of static electricity

TEXTILE EXHIBITION BELLE VUE MANCHESTER
SEE OUR EXHIBIT STAND No. 1313



Gacots High Draft Aprons have been scientifically designed for use with Gacots Textile Roller Coverings to give the finest drafting properties and perfect fibre control. Available in sizes to suit most popular frames, samples will be gladly sent for tests. Write to our official agents and roller coverers.

CLEGG MELLOR LTD.
WERNETH LEATHER WORKS
OLDHAM, Lancs.
Telephone: Main 4085

GEORGE ANGUS & Co LTD
ESTABLISHED 1788

OIL SEAL DIVISION, COAST ROAD, WALLSEND-ON-TYNE

"Erskine Heap" installation at IRWELL BANK MILLS

Below are illustrations of some of the Switchboards and Motor Control Gear installed during the complete modernisation of the Mills of the Irwell Bank Spinning Company Ltd.

The Switchboard in the top illustration controls the Power and Lighting for Mill No. 2 and contains circuit breakers ASTA tested at 25 MVA 400 volts to BSS. 116. The main Switchboard shown lower down controls the power and lighting to Mill No. 1.
There are several distribution boards, of which the one illustrated in the bottom left hand corner is an example.

The drive is partly group drive controlled by motor operated liquid starters in the old roperace (as seen in the bottom right hand corner) controlled from the main switchboard, and partly individual drive with contactor starters controlling each frame, as seen on the left hand side photograph.

Manufactured in England by

ERSKINE, HEAP & Co LTD

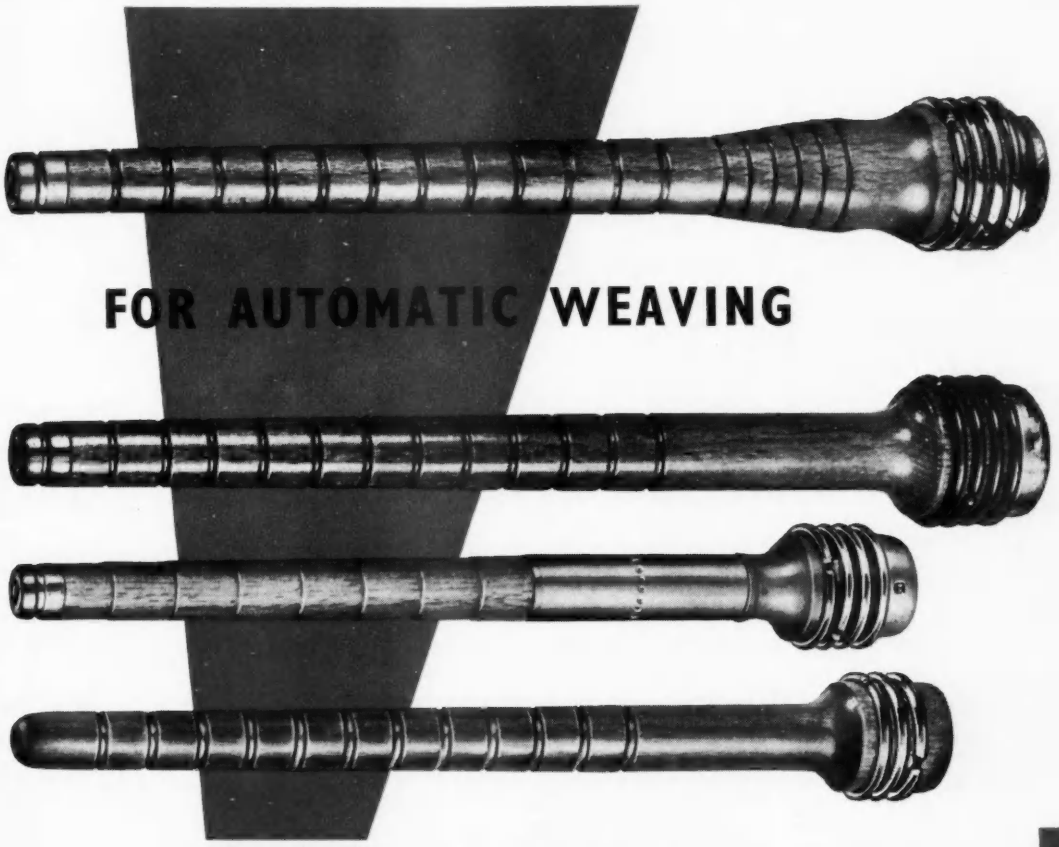
Switchgear Specialists

LANCASHIRE SWITCHGEAR WORKS, MANCHESTER 7

London Office: Grand Buildings, Trafalgar Square W.C.2

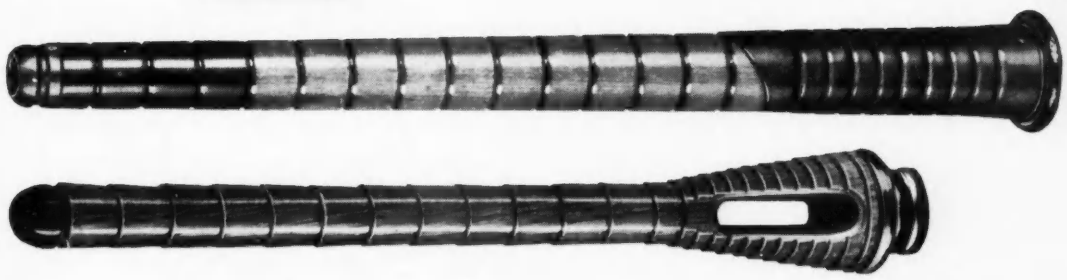
BRANCH OFFICES AND AGENCIES IN ALL PARTS OF THE WORLD

Welcome to our Stand No. 2705 Textile Machinery Exhibition, Belle Vue, Manchester. Oct. 15—25th.



FOR AUTOMATIC WEAVING

FOR ALL TYPES OF LOOMS, FOR ALL TYPES OF STOP MOTION, MADE OF DIFFERENT TYPES OF HARDWOOD, AND WITH VARIOUS VARNISHED FINISHES, SUITABLE FOR EVERY REQUIREMENT.



EMIL ADOLFF REUTLINGEN/WTTBG. GERMANY

SOLE SELLING AGENTS:

England and Wales: Crowther Ltd., Britannia Works, Thurmaston, Leicester.

Northern Office: Lloyd's House, 22 Lloyd Street, Manchester 2.

Scotland: H. Boettcher, 114 Seagate, Dundee

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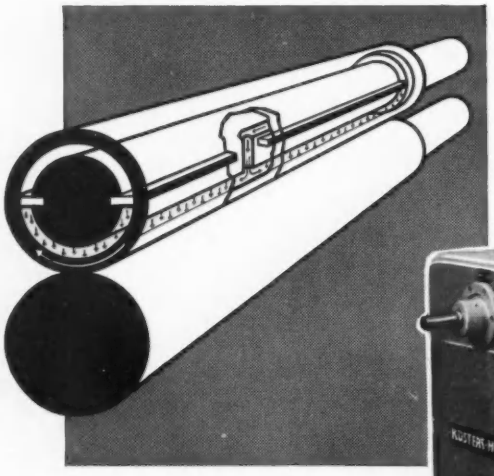
We are exhibiting in the Textile Recorder Exhibition at Belle Vue, Manchester, between the 15th and the 25th October 1958, Stand No. 2008.

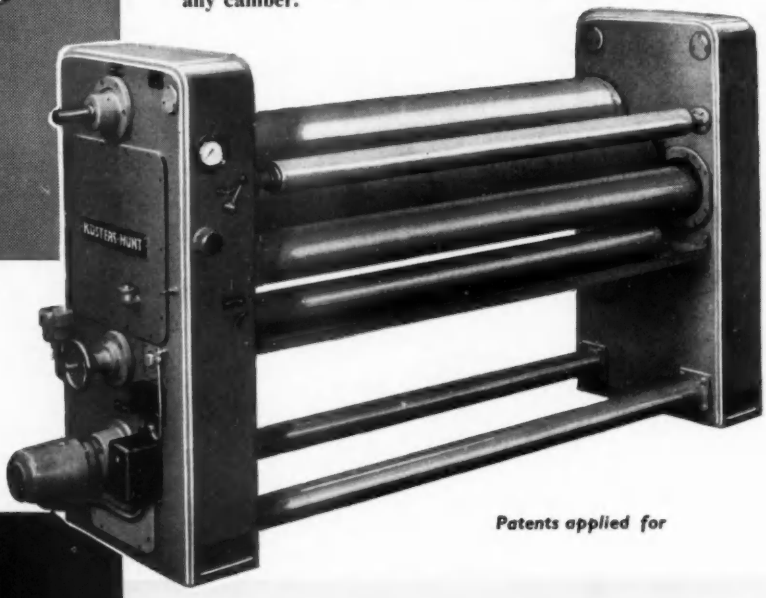
2 "REVOLUTIONARY" *Advances*



The KÜSTERS-HUNT SWIMMING ROLLER

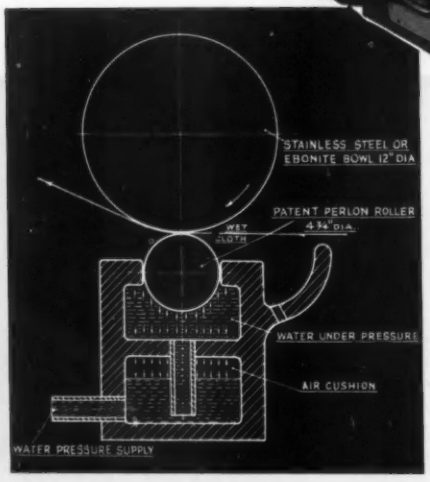
FOR CALENDERS AND MANGLES

An entirely new hydraulically charged roller, designed to give a perfect squeeze for impregnation or dyeing without any camber.



A Küsters-Hunt Patent 3 Bowl padding mangle incorporating the new SWIMMING ROLLER

Patents applied for



AND *THE NEW* KÜSTERS-HUNT AQUA-ROLL

FOR MANGLING

A completely new approach to water mangling and squeezing, the Aqua-Roll is water supported without any bearings whatsoever.

ON STAND C2208 AT BELLE VUE

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HUNT & MOSCROP LTD.

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for

Perfection in Winding

The Type RCN High Speed Cone or Cheese Winder deals alike with all spun yarns of any count and quality. This versatile machine produces 5″ or 6″ packages with uniform tension at speeds up to 1,100 yards/min. The positively driven dry- or liquid-waxing device ensures optimum knitting efficiency. Adjustable copholders reduce the unwinding tension to a minimum. Dust and "fly" are effectively removed by the travelling blower. The proven anti-ribboning device, speed variators, tachometers and our New "Easy Cleaners" are only a few of the many outstanding features of this machine.

The Type UC Hank to Cone Winder, widely used for all types of knitting yarns including nylon crimp yarns, is designed for the production of 9⁰ 15′ cones with increased taper. Our Patent disentanglement stop motion, and positively driven yarn feeders ensure maximum production with minimum knots. This machine, which can also be used for winding from cops at high speeds, is fitted with expanding metal swifts, dry waxing device and speed variator which enables winding speeds from 110 to 525 yards/min. to be obtained. The Type UC Winder is also supplied for winding from hank to cheese.

on STAND 2010 at Belle Vue, Manchester 15—25th Oct

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ALOST-BELGIUM

Sole Agents for the United Kingdom and Eire:

ROBERT S. MAYNARD
LANGHAM COURT, FIELDEN PARK,
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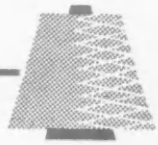
You will find



Quality, price and service are the ingredients of satisfaction. At C.E.M. we have successfully blended these in the correct measure for 29 years.

yarns are 'just right'..

BRANCHES OF THE GROUP

ALDER Spinning Co., Leigh *Leigh* 73

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COMBINED ENGLISH MILLS (SPINNERS) LTD

The World's Leading Spinners of Cotton and Man-Made Fibres

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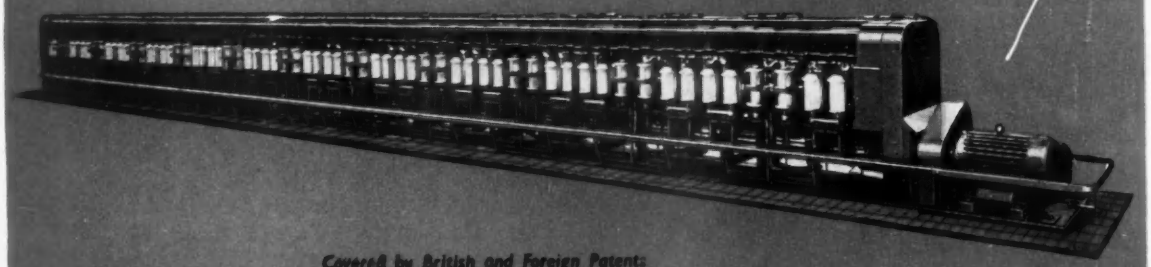
The Aruncorder TYRE CORD MACHINE



Covered by British and Foreign Patents

DESIGNED TO PRODUCE RAYON CABLED YARN FROM SPINNERS BOBBINS IN ONE OPERATION

- CABLE BOBBIN CONTENT 9 LBS.
- SPINDLE SPEED 4,000 R.P.M.
- RING DIA. 7 INCH WITH AUTOMATIC OIL-FEED

As supplied to the Dunlop Cotton Mills Ltd., and other leading Tyre Cord Manufacturers.

DEMONSTRATION FRAME OPERATING IN OUR SHOWROOMS FOR YOUR INSPECTION

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Textile Recorder, Textile Machinery and Accessories Exhibition, 1958.

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& COMPANY LIMITED
TEL.: STOCKPORT 3871 ALSO AT PRESTON
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Specialists in: WINDING, DOUBLING AND GASSING MACHINERY, *Also* SPINDLES, RINGS, Etc. FOR THE SPINNING AND DOUBLING TRADE.

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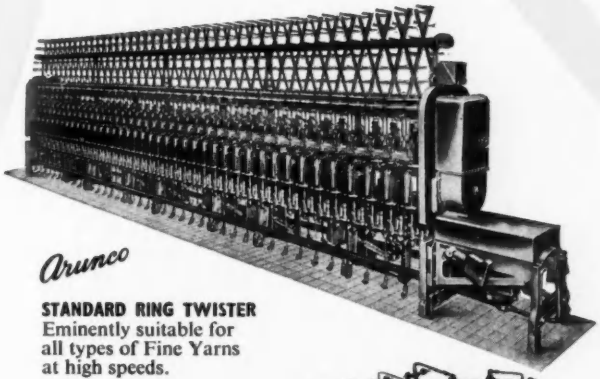
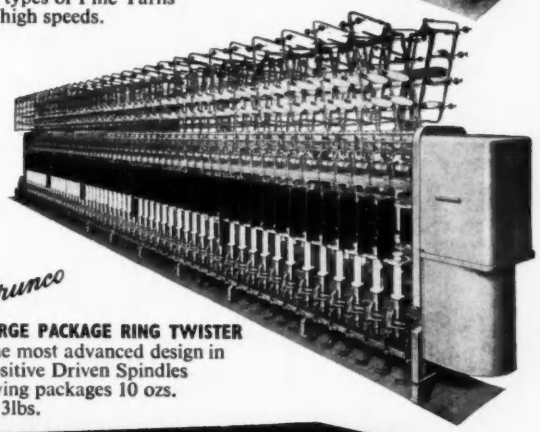
International
TEXTILE MACHINERY AND ACCESSORIES
exhibition
BELLE VUE MANCHESTER
15-25 OCTOBER 1958



Arunco

STANDARD RING TWISTER
Eminently suitable for all types of Fine Yarns at high speeds.



Arunco

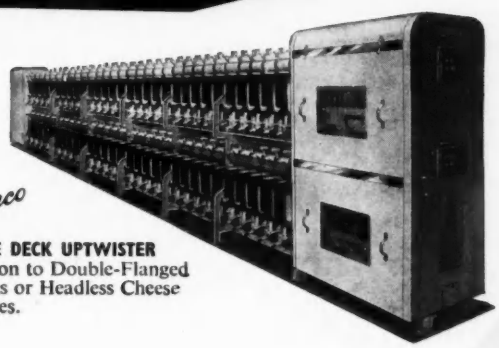
LARGE PACKAGE RING TWISTER
The most advanced design in Positive Driven Spindles giving packages 10 ozs. to 3lbs.

Arunco

machinery for the textile industry

. . . suitable for Woollens, Worsteds and all Man-made Fibres. Over 140 years experience in the Trade.

Rings and Roller Bearing Spindles our speciality-



Arunco

DOUBLE DECK UPTWISTER
Builds on to Double-Flanged Bobbins or Headless Cheese Packages.

The oldest Spindle Manufacturers in the country

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Textile Recorder, Textile Machinery and Accessories Exhibition, 1958.

ARUNDEL COULTHARD & CO. LTD. PRESTON *Telephone : Preston 3065 (Two lines)*
Established 1815, also at STOCKPORT

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THE MOST COMPREHENSIVE RANGE IN THE COUNTRY!
Enots
SOLDERLESS UNIONS
for the connecting of pipe-lines for use with fluids, gases, compressed air and hydraulic circuits
100% LEAKPROOF!
The indisputable advantages of the brass solderless fitting as a means of connecting copper pipe lines, over the older, unsatisfactory method of employing iron pipes and screwed fittings with all the troubles of rusting and leaky joints, are well recognised and, although first cost of material is higher, the additional expense is more than saved by the easy and convenient fitting and the economy in labour charges, apart from obtaining 100 per cent. leak-proof joints with Enots Solderless Fittings.
Write NOW for Catalogues S.F. 158 and S.P.F. 657
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STANDARD PIPE FITTINGS
BENTON & STONE LTD., ASTON BROOK STREET, BIRMINGHAM 6. Telephone: ASTon Cross 1905

SEE ENOTS PNEUMATIC and LUBRICATING EQUIPMENT and SOLDERLESS UNIONS on STAND 2507, HALL D

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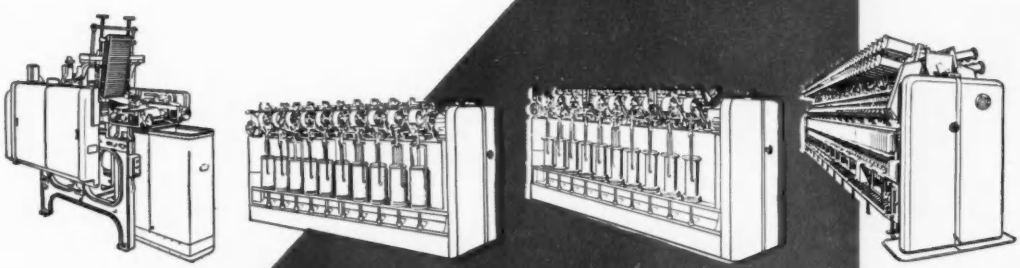
New Bradford SYSTEM



INTERNATIONAL EXHIBITION

MANCHESTER 1958

STAND 1601

THE NEW BRADFORD SYSTEM AND OTHER REVOLUTIONARY DEVELOPMENTS WILL BE SHOWN IN ACTION

PRINCE-SMITH & STELLS LTD

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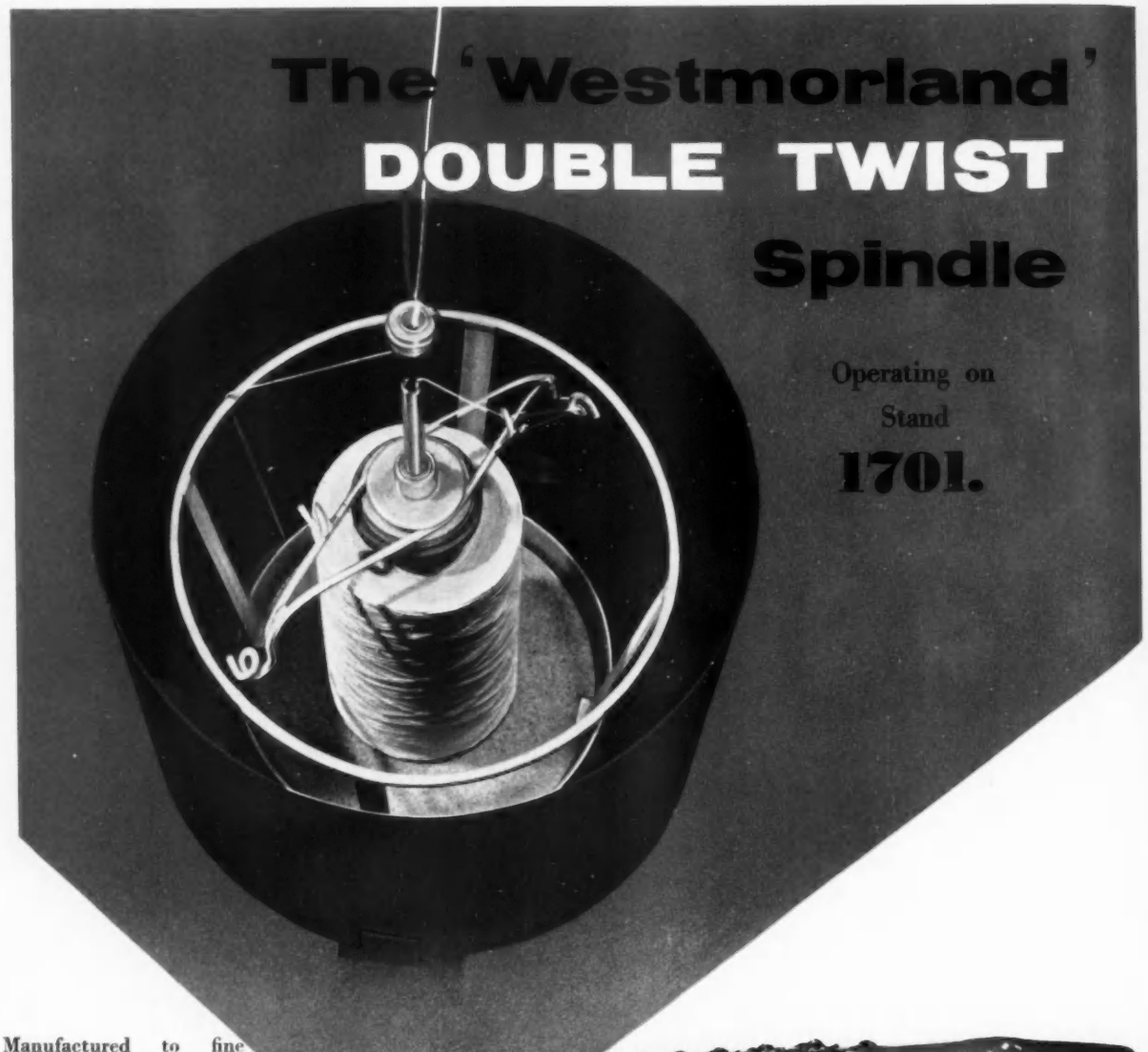
The 'Westmorland' DOUBLE TWIST Spindle

Operating on Stand **1701.**



Manufactured to fine precision limits.

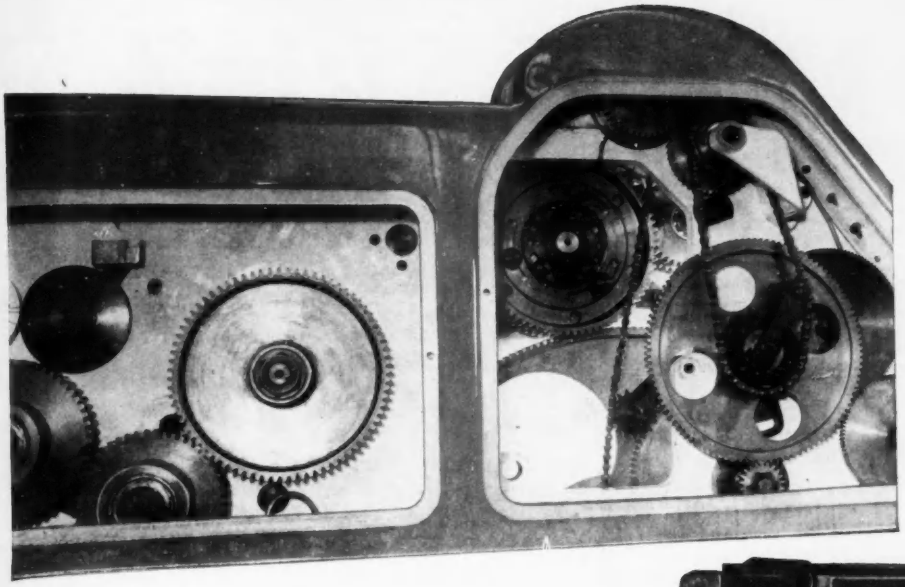
The simplicity of design ensures the highest mechanical efficiency with the minimum of maintenance.

The Westmorland Spindle gives increased production with greater twist regularity.

THE WESTMORLAND SPINDLE CO. LTD.

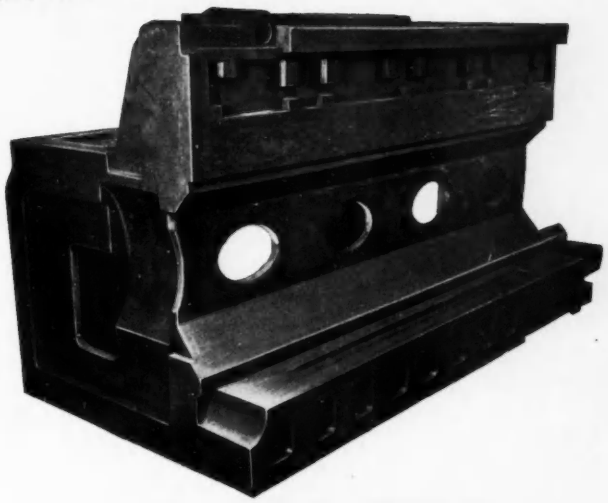
24, Birchin Lane, London, E.C. 3.

Pioneers in the development and production of the first all British Double Twist Spindle.

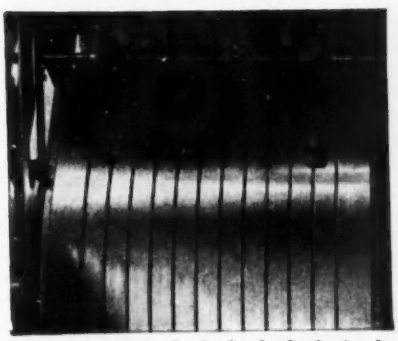


High duty castings

at the right price!



INCANITE high duty irons are in use throughout industry for machine bases, slides, gears, and rollers. For every application requiring high quality there is a grade of INCANITE at an economical price, backed by exceptional service. Castings are produced up to 6 tons in weight.



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the special process cast iron

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Cornwall Road, Smethwick, 40, Staffs.

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We are interested in Incanite and we should be pleased if you would

(*a*) send us further information
(*b*) ask your representative to call

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Position .....

Company .....

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18/36/58

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TEXTILE MACHINERY & ACCESSORIES EXHIBITION

VOLER REDUCTOL

New *super film-strength* graphited lubricant for enclosed gear units.

VOLER DRYLUBE

GRADE A.
Easy to apply, dry graphited lubricant, for "poker sticks", carding machines undercasings, etc.

GRADE B.
A semi-dry graphited lubricant, for light exposed gearing. Clean, effective and economical.

VOLER COMPOUND

Adhesive graphited lubricant for medium and heavy exposed gears.

VOLER THREAD LUBRICANT

A graphited composition for the prevention of metal screw thread corrosion and seizure.

Also the **REVOL** *belt treatments recommended for flat belts and V ropes*

REVOL LIMITED

EXCHANGE BUILDINGS . QUAYSIDE . NEWCASTLE UPON TYNE

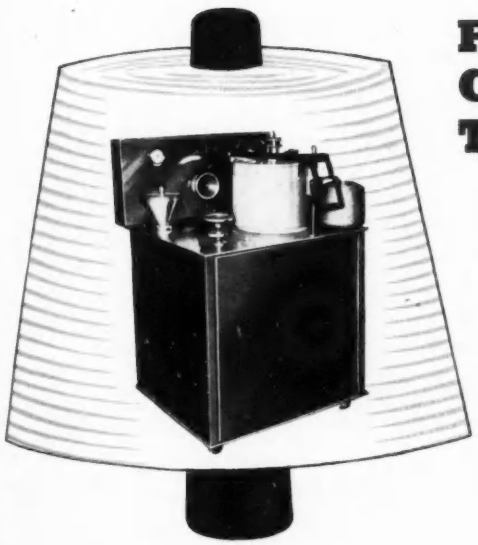
Consider why Yarn Conditioning pays

- It guarantees a higher strength, resistance and elasticity of the yarn, avoiding broken ends and fallen threads.
- It sets the twist in the yarn and prevents snarling.
- It produces a fuller and more uniform fabric with a softer handle, due to higher yarn regularity.
- It prevents the yarn from attracting dust, as all static charges are eliminated.
- It reduces considerably the amount of dust usually carried into the fabric and ensures less dust in the factory.

RESULT

A higher quality and better appearance of the fabric.

A considerable increase in the production and efficiency of Knitting Machines and Looms.



Type FIT Single Turbine.
Output up to 250 packages an hour.

NEW

Patent Automatic Conditioning Turbine by MOREL

FOR CONES AND CHEESES

Conditioning of each package only takes about 12 seconds and a **uniform distribution of moisture is ensured throughout the package.**

The Turbine is precision made, fully automatic, and will condition cheeses and cones **of every type of fibre in all shapes and sizes.**

Production of Type F2T Double Turbine up to 500 packages an hour.

Already over 100 Turbines supplied to Spinners, Knitters and Dyers throughout the world.

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International Textile Machinery Exhibition
Belle Vue, Manchester, October 15-25

For full details, please write to: ROBERT S. MAYNARD, Langham Court, Fielden Park, MANCHESTER, 20. - Tel. Didsbury 7330.

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thread guides

Recommended by "I.C.I." as the ideal material for processing **'TERYLENE'**

Ideally suited for EVERY KNOWN FIBRE.
'FARADEX' can be supplied in "CONDUCTING" or "NON-CONDUCTING" material in controlled matt or highly polished surfaces.

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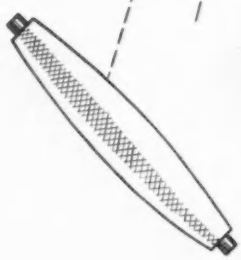

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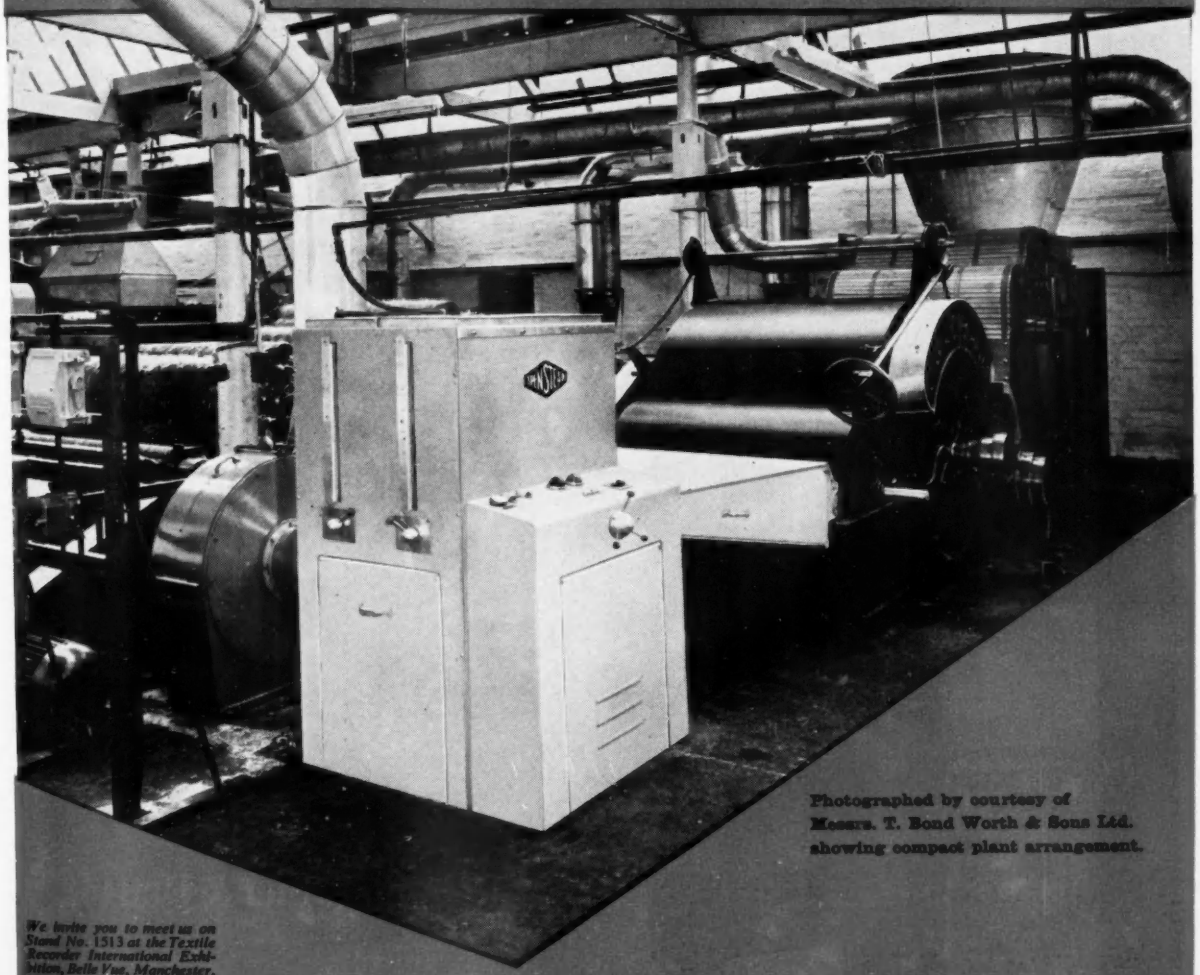
How do YOU oil Wool?

With this new Vortex Wool Oiler you just set the quantity control, "switch on" and the rest is automatic. Wool flow and oil flow are synchronised—No pumps—No compressed air—no jets to make up—no trouble. Only the new Vortex has all you ever hoped for.



Photographed by courtesy of Messrs. T. Bond Worth & Sons Ltd. showing compact plant arrangement.

We invite you to meet us on Stand No. 1513 at the Textile Recorder International Exhibition, Belle Vue, Manchester, 15—25 October, 1958

it's no trouble with SPENSTEAD NEW Vortex Wool Oilers

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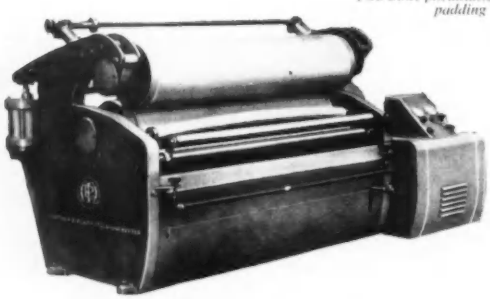
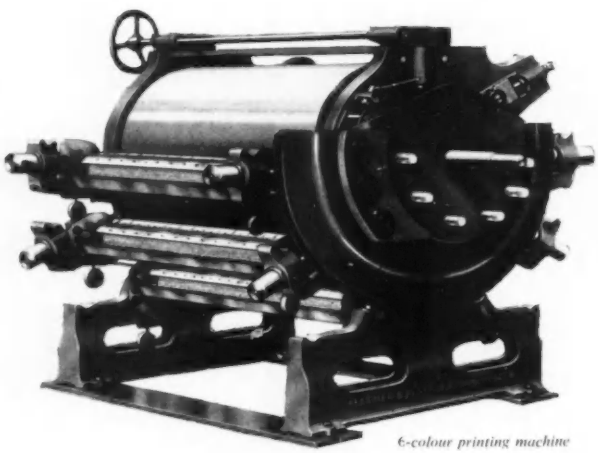
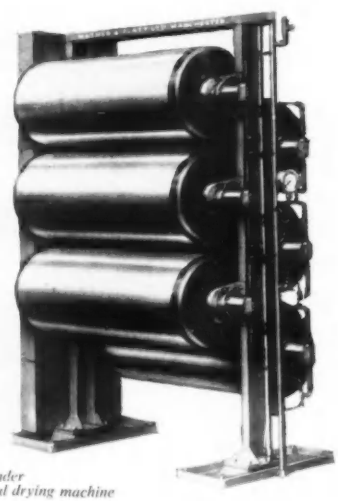
Two-bowl pneumatic off-set padding mangle



It's a question of design...



6-colour printing machine



6-cylinder vertical drying machine

The Two-bowl Pneumatic Off-set Padding Mangle illustrated is equipped with large diameter bowls for even padding, a skewing arrangement for the top bowl to ensure level expression at all loads, easily detachable roller bearing blocks and independent pressure adjustment, with finger-tip control, for each side.

The 6-colour printing machine (hydraulically loaded and with handwheel-operated pattern synchronising equipment) and the 6-cylinder vertical drying machine are other examples from our newest range of textile finishing machinery. See them during the Textile Exhibition. STAND 2101

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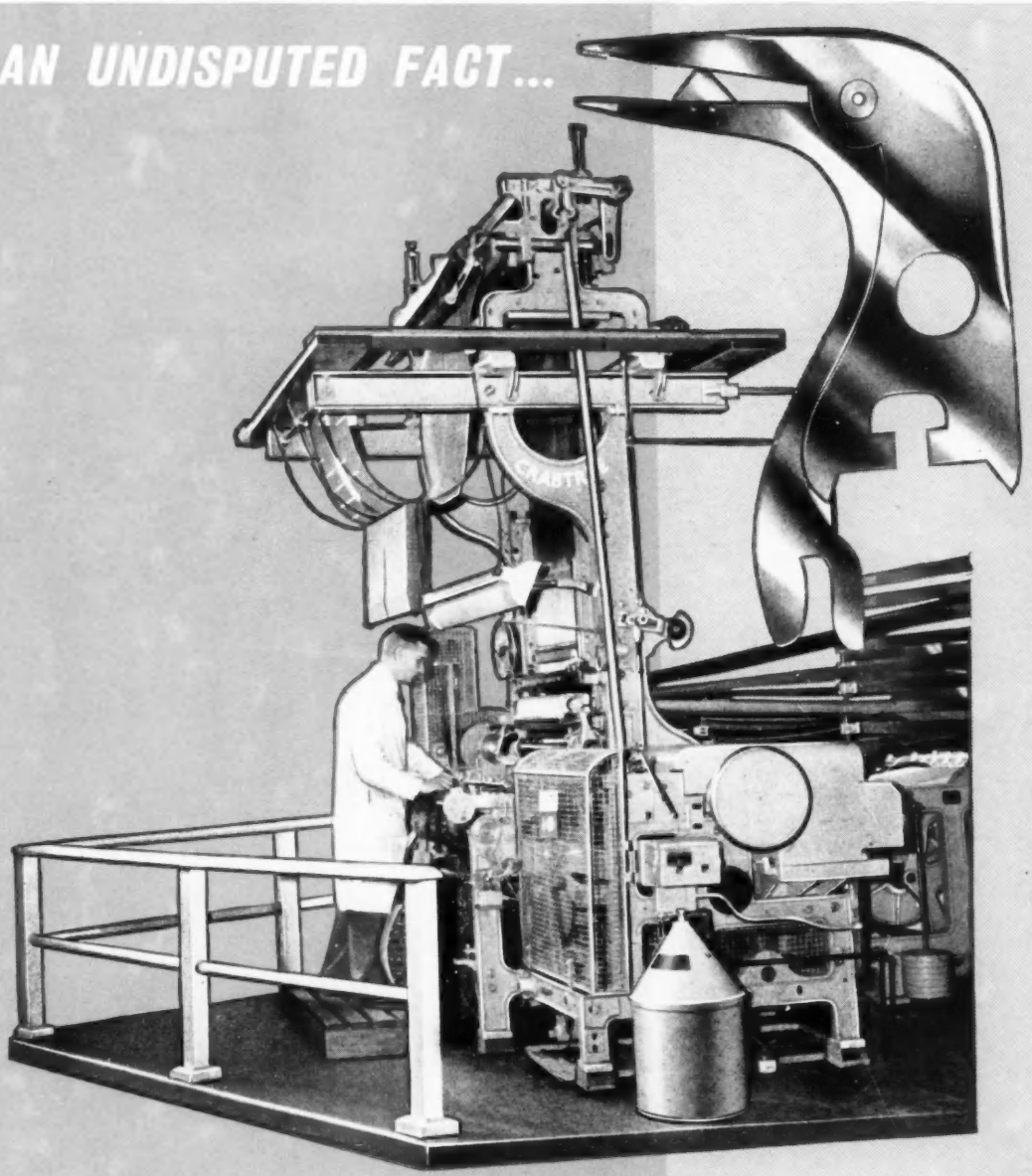
IT'S AN UNDISPUTED FACT...



the finest loom produces the finest carpet with the greatest economy.

Crabtree Gripper and Spool Gripper Looms have that smoothness and efficiency which only years of experience, experiment and skill can build into a machine.

Capacity of Looms range from 18" to 4 yd. and from 50 cm. to 350 cm.

If you are extending or modernising your plant, consult Crabtree.

Our technicians are at your service.

See us at
STAND No. 1519
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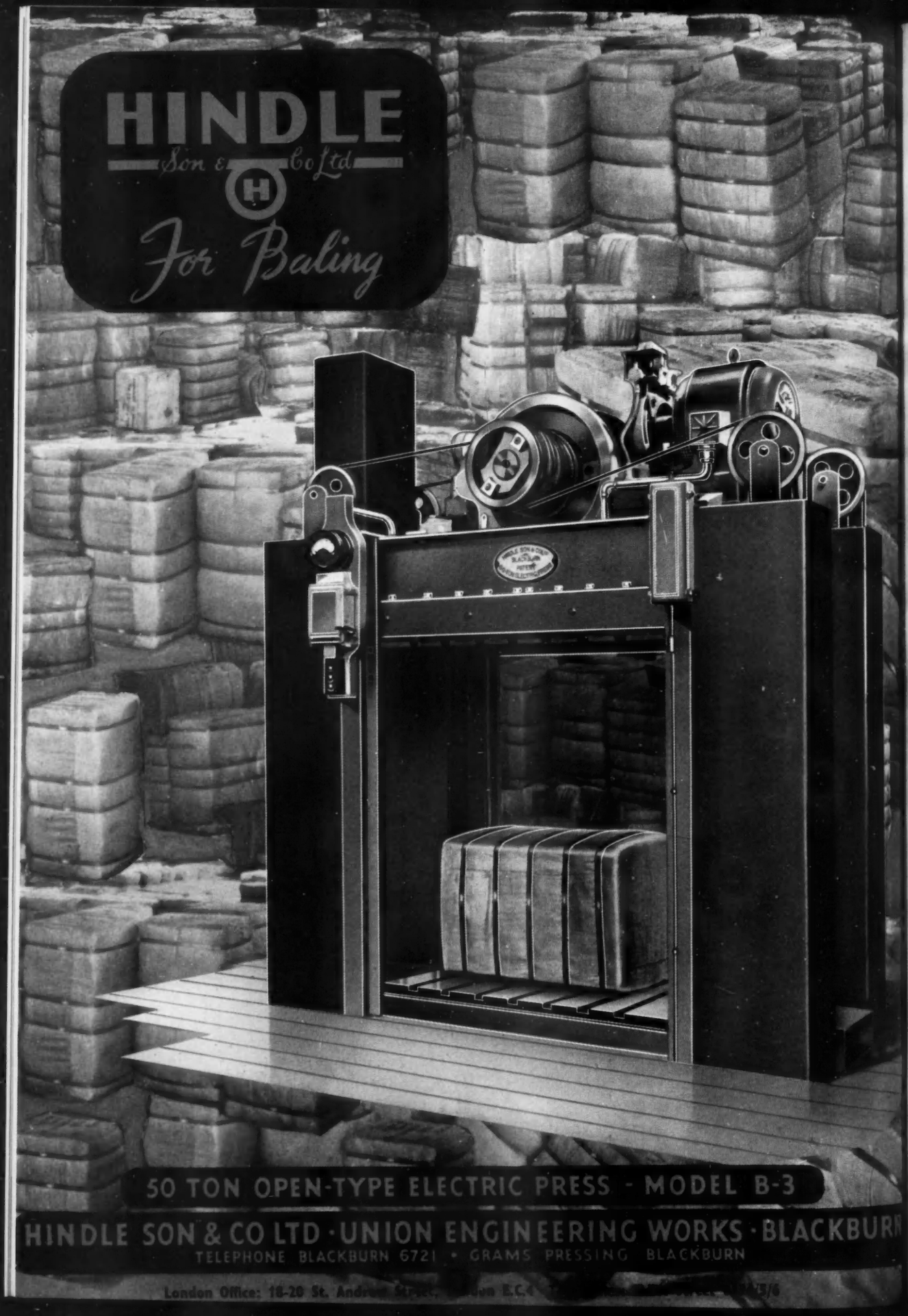
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50 TON OPEN-TYPE ELECTRIC PRESS - MODEL B-3
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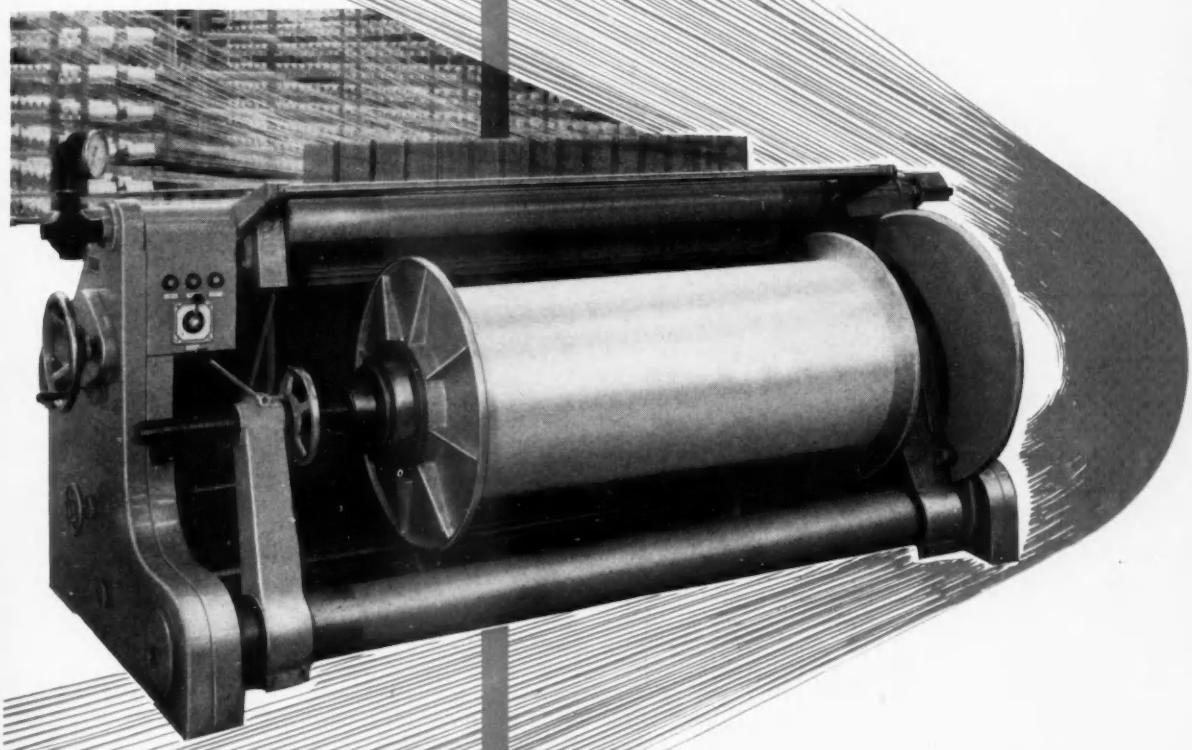

NEW HIGH-SPEED DIRECT BEAMING MACHINE, providing constant yarn speed throughout the operation. Other features include pre-determined measuring counter, incorporating electric stop motion, controlled warp density.

Special fitments are also available to produce soft beams suitable for beam dyeing.

Yarn speed variable from 150-600 metres per minute.

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A MEMBER OF THE SCRAGG GROUP OF COMPANIES.

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Stepless Speed Variation accurately controlled for fine processes

The Textile Machinery
and Accessories
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1958

Stand No. 2305 features

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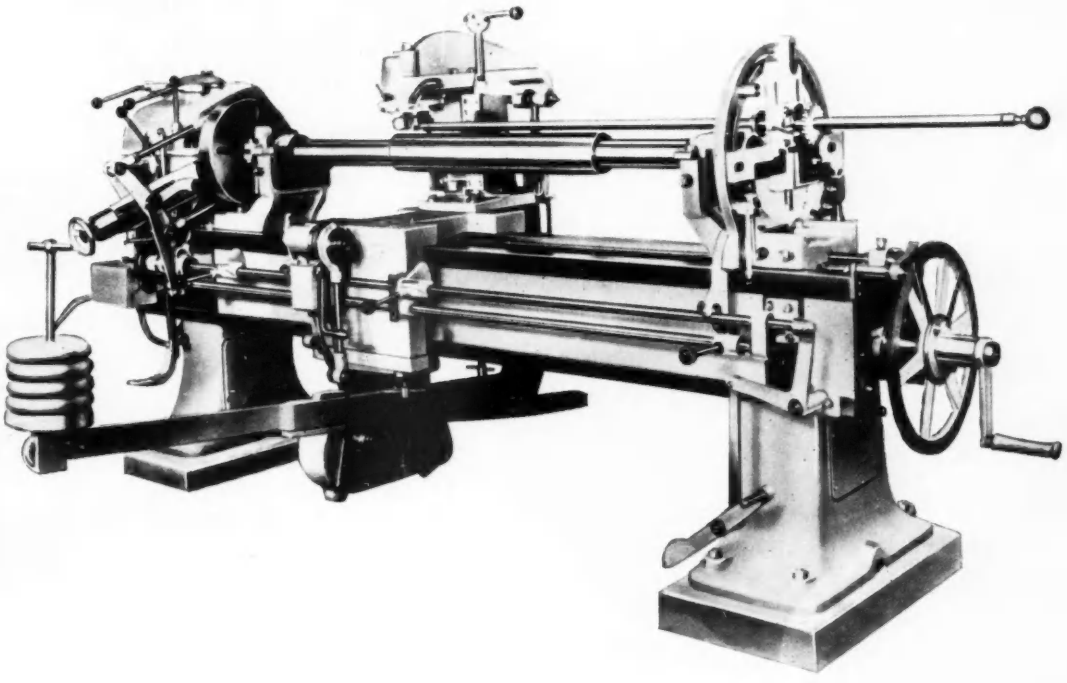
Of the great number of well-proven machines of the ELITEX *make we are offering you the*

· MS2 · MILL-ENGRAVING MACHINE

- This machine eliminates heavy work
- Accuracy in transferring of patterns
- Universal application also for diagonals and spirals
- Automatic stamping of patterns

We invite you to see this machine at the International Textile Exhibition at Manchester on Stand 1805 Hall A



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Agents for United Kingdom and Eire:
MACART TEXTILES (BRADFORD) LTD. 108/109 Swan Arcade, Bradford, 1, Great Britain

Research to Reality

The Whitin machines you will see on display at Manchester were, not so long ago, just ideas in the minds of our research engineers—but Whitin has a particular faculty for turning such ideas into realities—into cleverly designed, skilfully built and highly productive textile machinery. It's the type of machinery that could make your dream mill a reality, also.

The newest and most advanced models for drawing, combing and spinning are in operation at Stand No. 160½. We hope you'll visit us there.

NEW MODEL K SPINNING FRAME
The new Model K Spinning Frame with Super-Draft* is the newest and most dramatic machine in our line. Among a score of desirable features are: 27″ width, side shaft single-spindle drive, no tapes or cylinders, straight line spinning and balloon control rings. Compact head end encloses all gearing as well as builder and traverse motions.

EVEN-DRAFT* DRAWING FRAME
A modern high-speed Drawing Frame producing up to 300 ft. per minute. Features a 4 over 5 roll drafting system and a unique pneumatic waste removal system. It produces unusually even sliver on carded or combed cotton, synthetics and blends up to 3″. Standard can size 16″ × 36″. Both 4 and 8 delivery frames available.

SUPER J* COMBER
This world-famous, 8 head Comber operates at 150 nips per minute. Production up to 50 lbs. per hour may be realized depending upon cotton used and noils extracted. Simplicity of design and stability of settings contribute to low maintenance costs.

* Trade Mark

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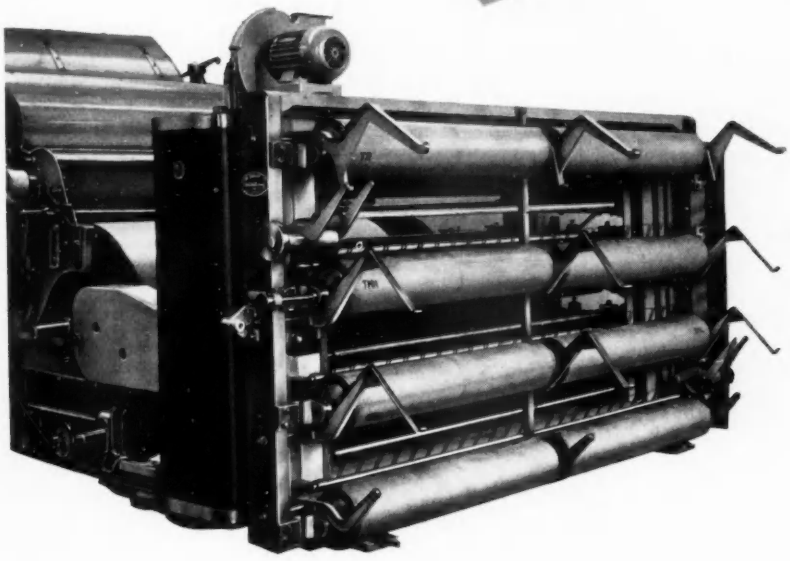
Woollen Carding Machinery



Makers of the finest quality Carding Machinery on the Continental, Semi-Continental, English and Scotch systems, and also special type Carding Machinery for hair and synthetics.

Four Tier Single Rubber Tape Condenser with Traversing Creel, for large Package Ring Spinning Frames.

THE CHADWICK MACHINE CO LTD

MARSH MILLS, CLECKHEATON
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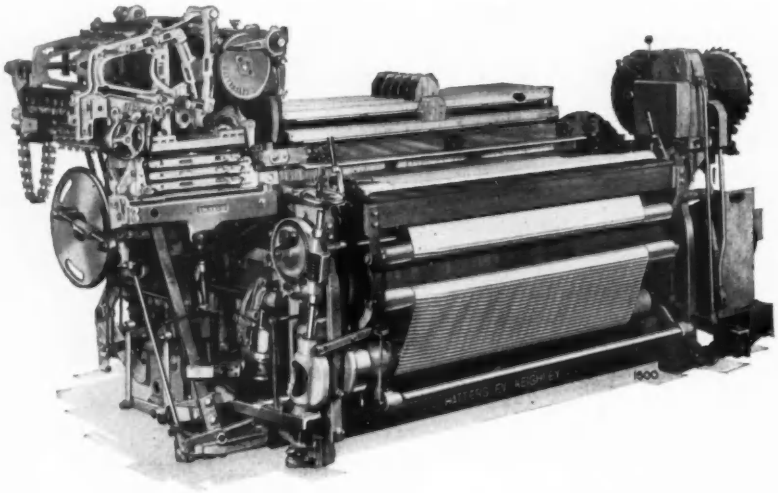
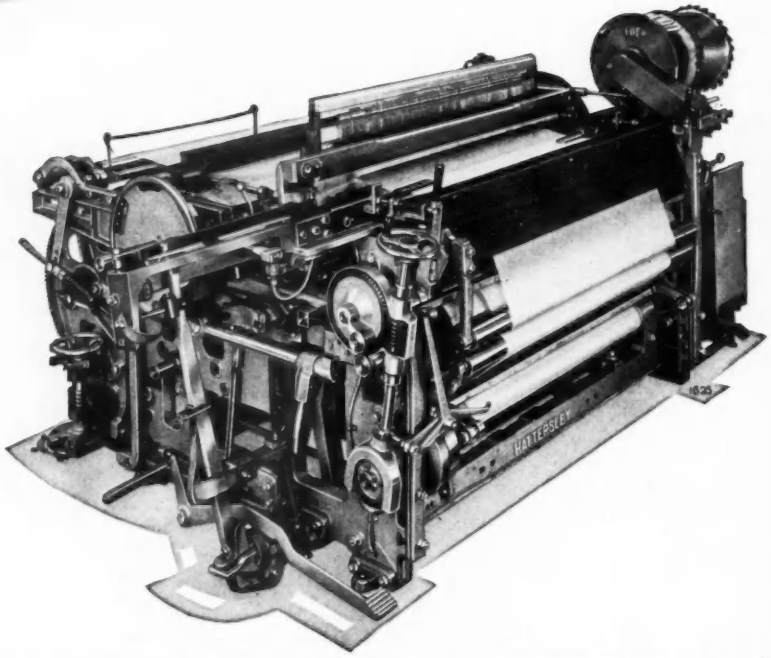


HATTERSLEY AUTOMATIC FILAMENT LOOMS

The Hattersley range of Silk and Rayon Looms embody all the essential requirements to meet the demands imposed by the latest filament yarns.
The range offers the alternative of two types of automatic weft replenishing motions for 4, 2 or 1 colour of weft. For automatic pirn changing there is the +üF+ pirn changing mechanism, and for automatic shuttle changing the well proved Hattersley shuttle change motion.

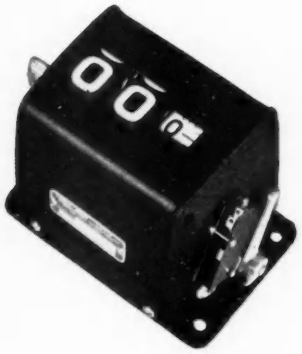
For pick-and-pick weaving there are non-automatic models with 4 or 2 boxes at each side of the loom. Shedding is by Jacquard, 24 sh. Cam Dobby with either paper card reading mechanism or lags and pegs, 10-shaft cam box, or 4-shaft positive inside treading. Other features in these jig built looms include choice of three alternative let-off motions, electrical or mechanical warp stop motions.



MADE BY
Hattersley
THE OLDEST FIRM OF LOOM MAKERS IN THE WORLD

Three models in this Range will be shown at the Textile Machinery Exhibition, at Belle Vue, Manchester.
October 15th—25th.
Stand No. 1602

GEORGE HATTERSLEY & SONS LIMITED
KEIGHLEY : ENGLAND
Established 1789 Telephone 2275



Electrical and Mechanical Counters

VEEDER-ROOT LTD

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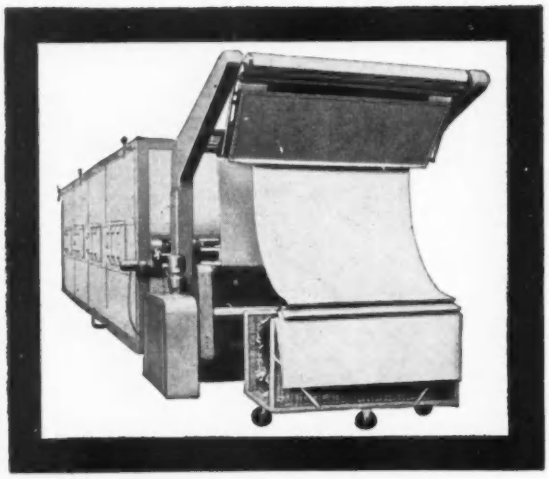

Come and see –

the remarkable –

'LAY-ON-AIR' DRYER

ON STAND 2209

at the

INTERNATIONAL TEXTILE MACHINERY AND ACCESSORIES EXHIBITION

BELLE VUE MANCHESTER
15-25 OCTOBER 1958

You've heard about it—You've read about it—You've seen it advertised. Now see the 'Lay-on-Air' Drying System in operation. 'Lay-on-Air' Driers are available for all types of fabrics, and also for polymerising, shrinking and pigment colours. They are also extensively used for the impregnation and drying of paper with dissolved resins, phenols, latex, etc.

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WORLD RECORD DRYING SYSTEM

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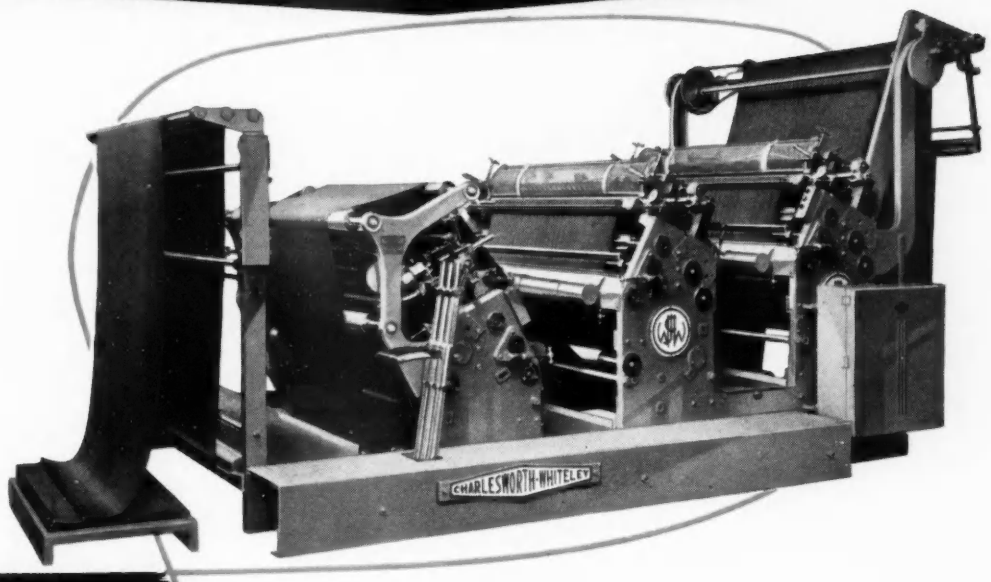
SHEAR-O-MATIC



A necessity in all modern finishing plants

SOLID, HOLLOW, CUSHION OR SPRING BEDS TO SUIT REQUIREMENTS

Design Highlights

- Infinitely variable speed between 30 and 180 feet per minute.
- Shearing heads inclined at an angle improve the vision of cloth when shearing.
- Gangways for easy access between shearing units.
- No cloth turnover device under machine.
- Platform alongside operator's side of machine.
- Constructed in separate units to eanble additionnl shearing units to be fitted.
- Can be supplied with any type of bed mentioned above.
- Individual motor drives to all cylinders can be started only when safety guards are in position.
- All high speed shafts, brushes, and flock fans, dynamically balanced and running in ball bearings.
- Improved Whiteley patent cut adjusters.
- Electro-magnetic brake fitted to draw through motor prevents over-run of cloth when machine is stopped.
- Oscillating motion fitted to all cylinders.
- Flock extracted from shearing heads through new patent hollow stock.
- Cuttler can be adjusted to give three different widths of cuttle.
- Scroll roller fitted before shearing heads to keep cloth to maximum width.
- Solid frames make the machine free from any vibrations.
- Shearing cylinders 3¾ in. bodies fitted with 17 file cut bayonet spirals.
- Centralised control to enable easy operation.
- Stop, start, and inching switches placed in convenient positions on the machine.

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TEXTILE FINISHING MACHINES

Unsurpassed in Quality and Performance, are backed by the Accumulated Experience of over a Century

FOR ALL YOUR TEXTILE FINISHING MACHINERY REQUIREMENTS CONSULT:

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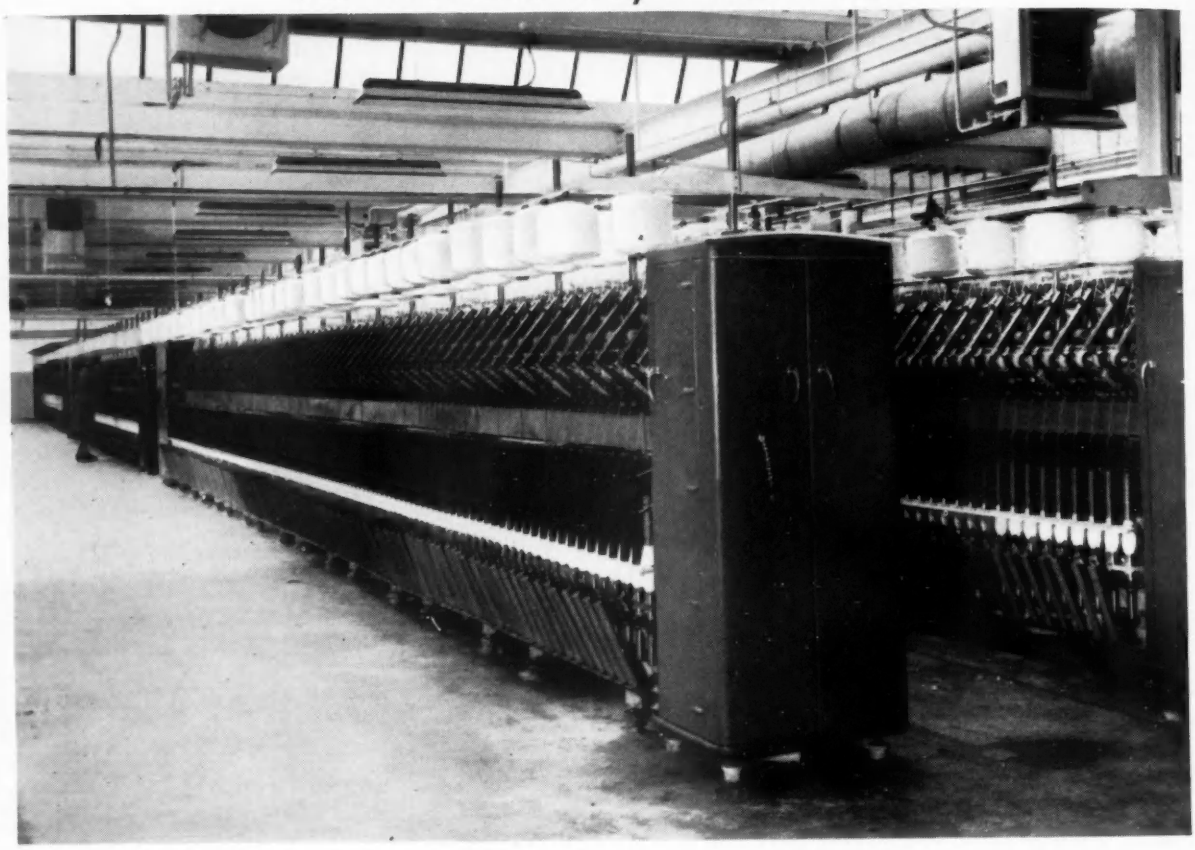
MAGNASPIN

RING SPINNING FRAME
For Worsted & Synthetic Fibres



LOWERS COSTS and
GIVES HIGH PRODUCTION

PRODUCES HIGH QUALITY YARN

HAS GREAT FLEXIBILITY

SAVES FLOOR SPACE

Ultra large spinning packages of 12 oz. on Worsted medium counts and 17 oz. on Synthetic yarns spun at 6500/7000 r.p.m.

With Draft range of up to 21, dependent upon Rove quality.

Because it has been created to handle all types of Rove prepared on Bradford, French, Anglo-Continental or new drawing systems of the American type.

THREE MAGNASPINS can be operated conveniently on the floor space normally occupied by TWO conventional spinning frames.

FAIRBAIRN LAWSON COMBE BARBOUR LTD.
WELLINGTON STREET, LEEDS

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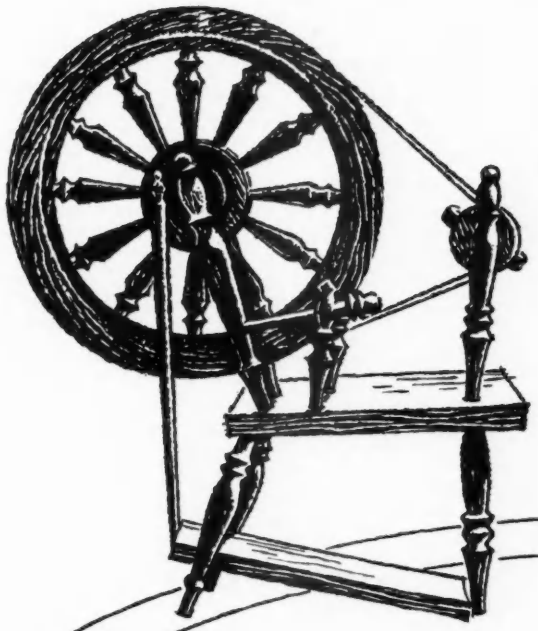


interested in mill modernisation?

Keep in step with progress, investigate the latest developments and most modern techniques employed in the spinning industry.

Whether you are spinning cotton, silk, synthetic fibre, woollen, worsted, jute or flax, you will find much to interest you on Stand 1408 where Armstrong Technical Representatives will be pleased to meet you.

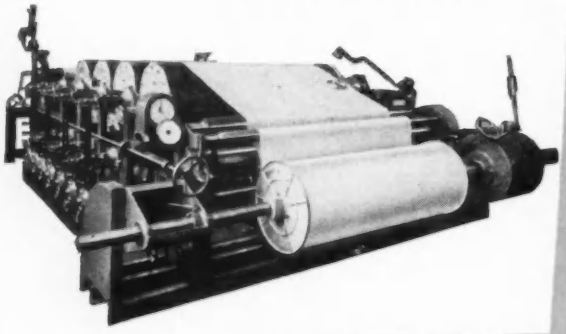
see our display on stand 1408

Armstrong
CORK COMPANY LTD.

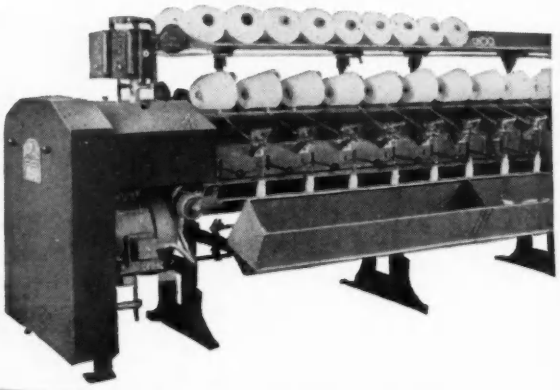
ARMSTRONG CORK COMPANY LTD., 210-213 ROYAL EXCHANGE, MANCHESTER 2. Telephone: DEAnsgate 7311/2. And at Peckover Street, Bradford, and Kemback Street, Dundee. Regd. Office: Kingsbury, London, N.W.9. Factories: OLDHAM and GATESHEAD-ON-TYNE.

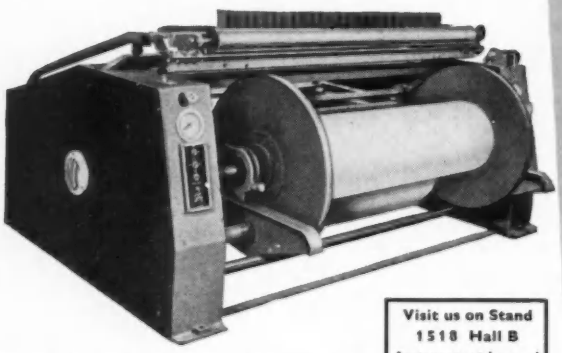
Increased Production...

All yarns Multi-Cylinder Warp Sizing Machine. Suitable for all yarns, including acetate and viscose rayon, nylon and "Terylene"; also rayon, staple, linen, flax, jute and cotton.



Model 'M86' High Speed Cone or Cheese Winding Machine for perfect packages. Deals alike with all spun yarns in any count or quality.





No. 7 High Speed Beam Warping Machine. Capable of warping speeds up to 1,000 yards per minute. Infinite variable speed, hydraulic beam pressure control, hydraulic beam doffing, ultra-rapid braking system, and simple duplicate controls.

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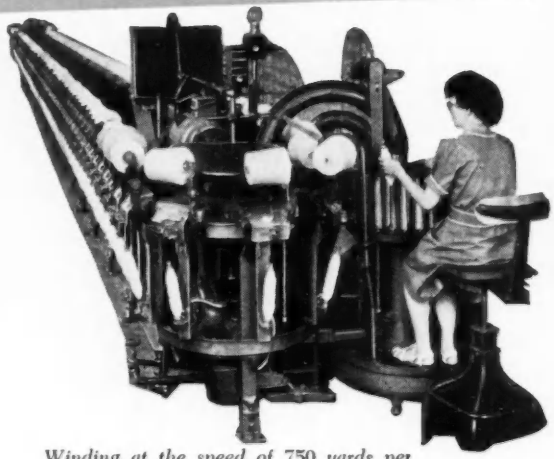

Winding at the speed of 750 yards per minute, the Model 'U' Automatic Travelling Spindle Cone and Cheese Winding Machine increases operative production by 300 per cent.

LOWER OPERATIVE COSTS WITH HOLT

In addition to the machines illustrated above, the Holt range also includes machinery for High Speed Automatic Pirn Winding (Model 'AP'), High Speed Cheese Winding (Model 'K'), Magazine and Single End Type Creels, Automatic Leasing, High Speed Cross Balling, Nylon Thread Gumming, 378-Spindle Pirn Winding and Warp Mercerising. Leaflets describing all these machines are freely available on request.

HIGH SPEED PRECISION TEXTILE MACHINERY

THOMAS HOLT LIMITED - ROCHDALE AND DARWEN

dmHT67

Increase your Profits by
INCREASED-LIFT CONVERSION

The illustration shows the package produced before conversion, and the considerably larger package produced on the same machine after conversion.

Close-up view of ring frame after conversion, illustrating the new rising and falling lappet rails, ball-bearing spindles, die-cast separators, and larger packages.

A "Lloyd" increased-lift ring frame conversion can be carried out on all makes of frames, and includes:—

- New roller bearing spindles.
- New ball bearing tape tension units.
- New rising and falling lappet rails.
- New die-cast separators.

Any make of ring frame can be modernised at an approximate cost of between 25/30% of the cost of a new frame.

Complete conversions, including fitting time, charged at a fully inclusive price.

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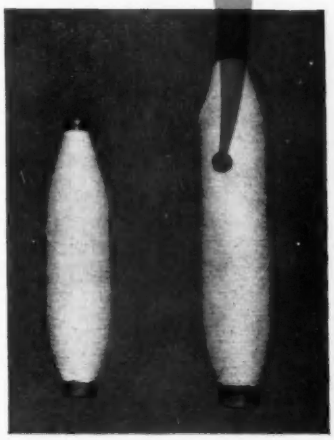

Another illustration indicating the increase in package size after a "Lloyd" increased-lift conversion.

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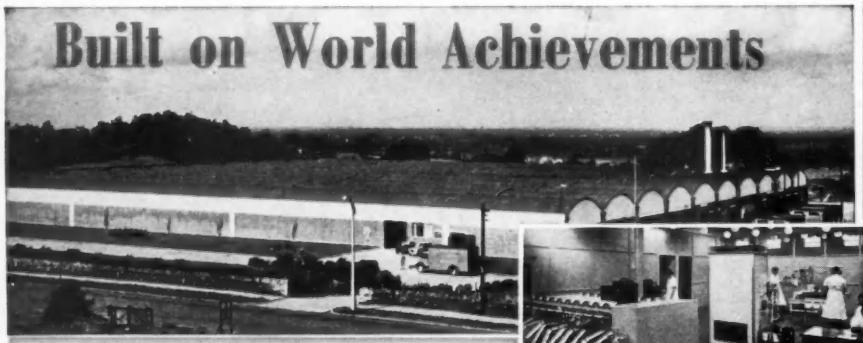

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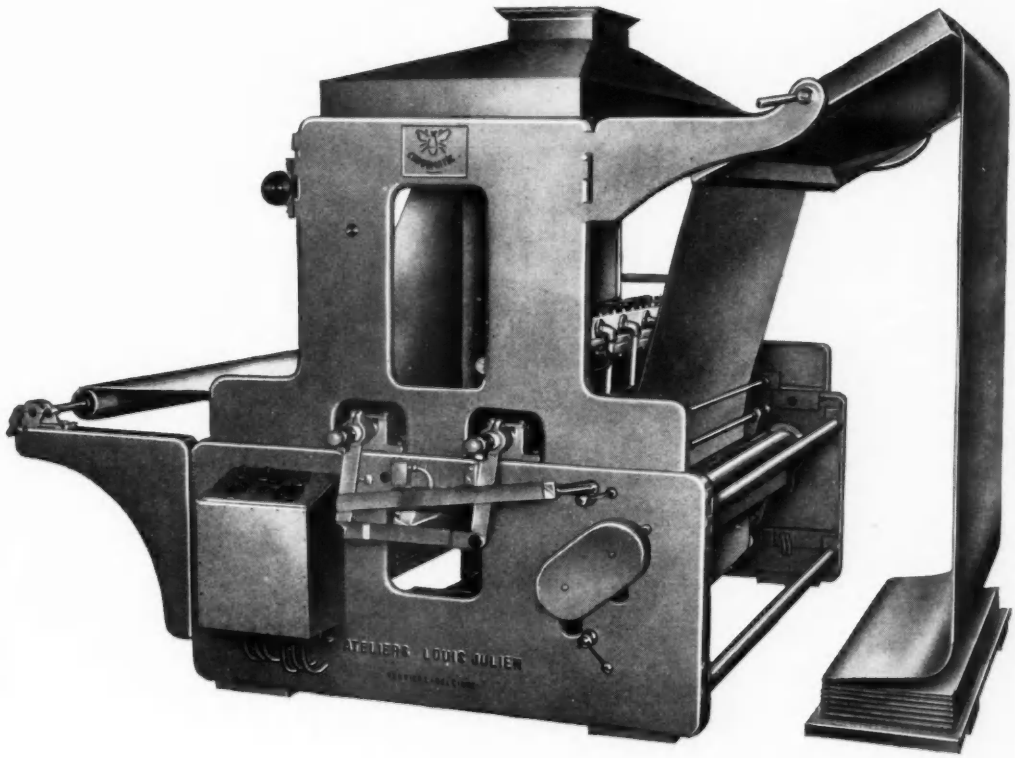

Equipped with Carbomatic burners combining infra-red and flame effects; the same machine can be adjusted for all types of goods: Cotton, Wool, Spun rayon, synthetics . . .

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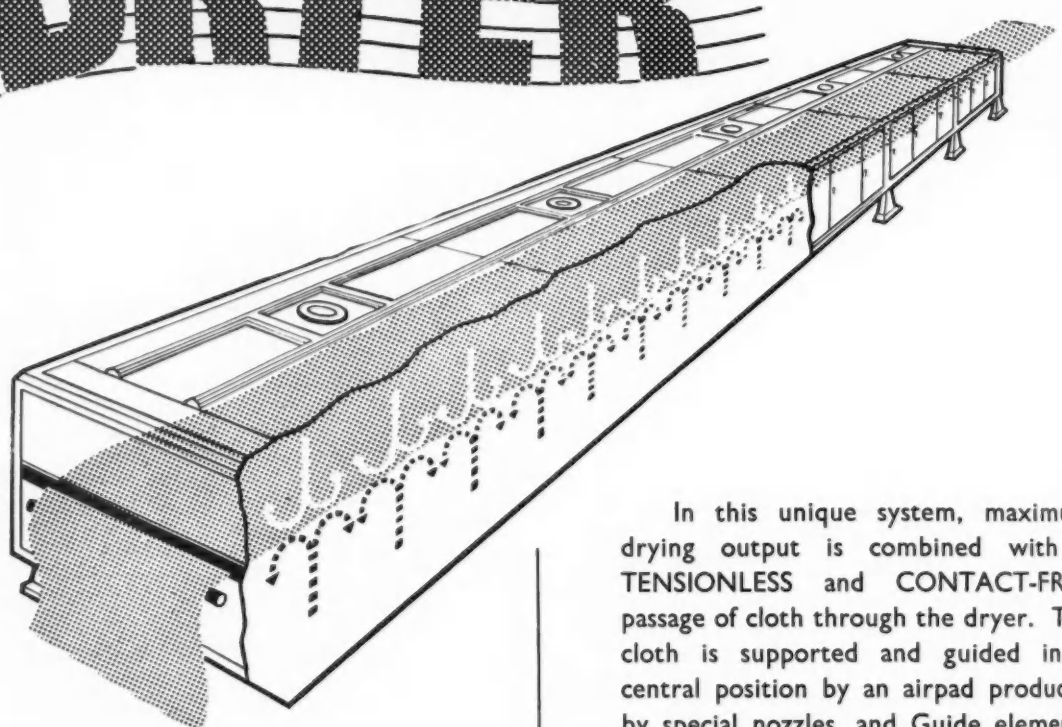

Besides the drying of normal fabrics, the machine can handle variable surfaces such as velvets, plushes, crepe material, etc., and knitted material in tube form as well as heavily coated fabrics.

In this unique system, maximum drying output is combined with a TENSIONLESS and CONTACT-FREE passage of cloth through the dryer. The cloth is supported and guided in a central position by an airpad produced by special nozzles, and Guide elements such as rollers, conveying rods and belts have been completely eliminated. This ensures uniform drying, best conditions for shrinkage in warp and weft, with security against spoilage and marking of the cloth.

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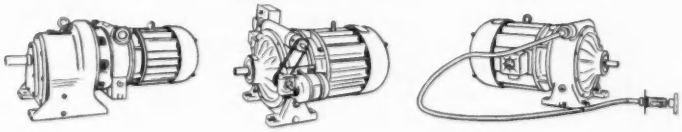

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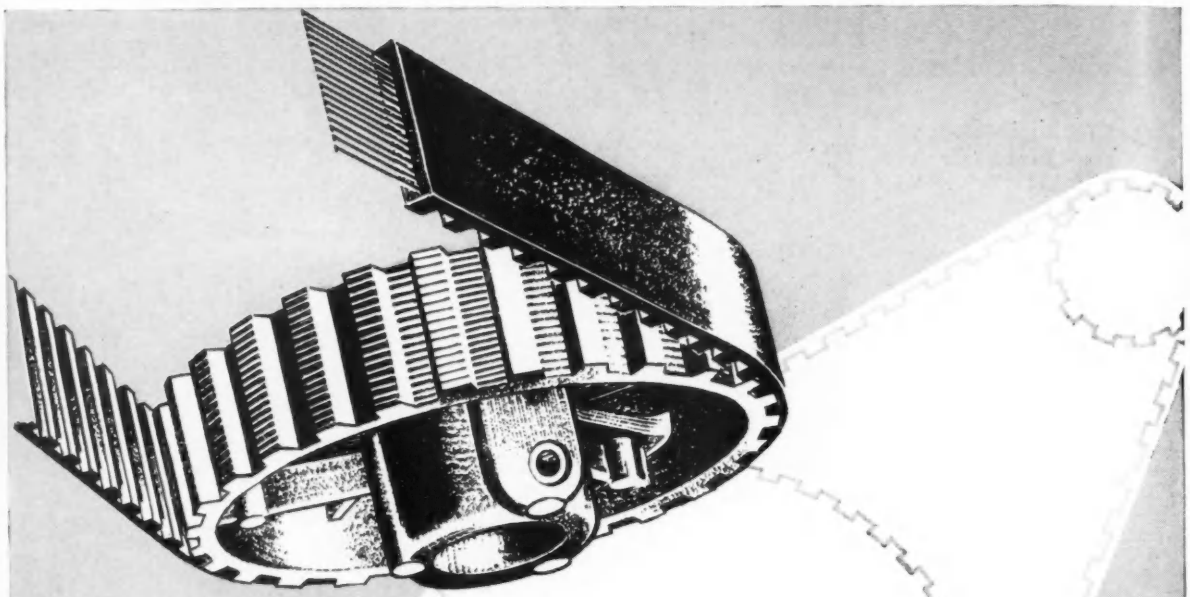

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LACONTAINERS

see them at the
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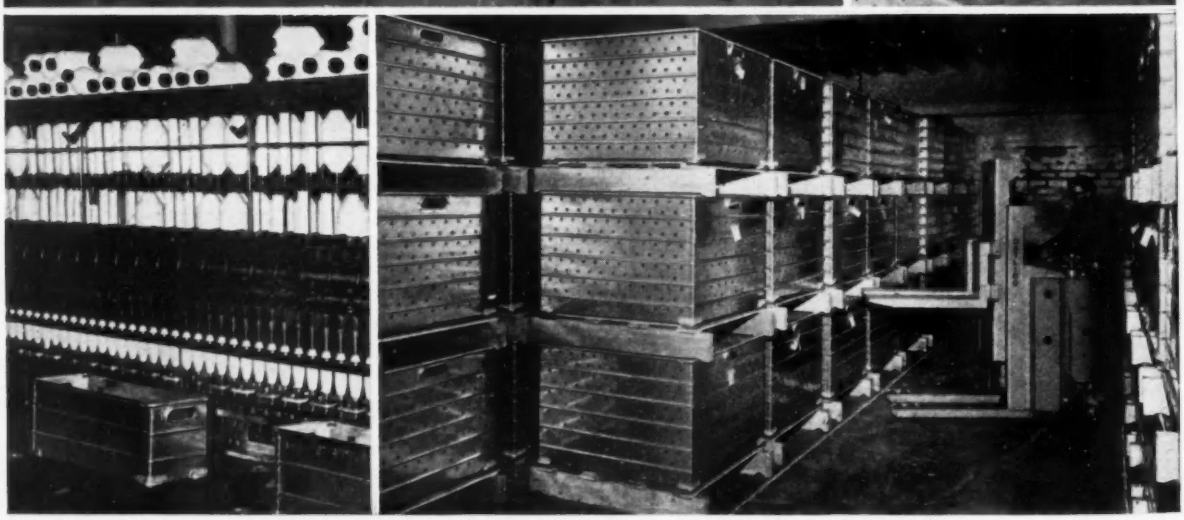
revolutionise textile handling

Wicker skips have had their day, modernise the Lacon way

For the handling of cops, bobbins, cheeses and piece goods, Lacon light alloy containers bring new standards of efficiency and economy. Although costing little more than ordinary containers Lacontainers last four times longer, and are only one third their weight. They save two thirds on storage space, as they allow rigid stacking with or without pallets. They are fire resistant and obviate the snagging of yarn — a common occurrence with wicker skips.
Send for illustrated data sheets



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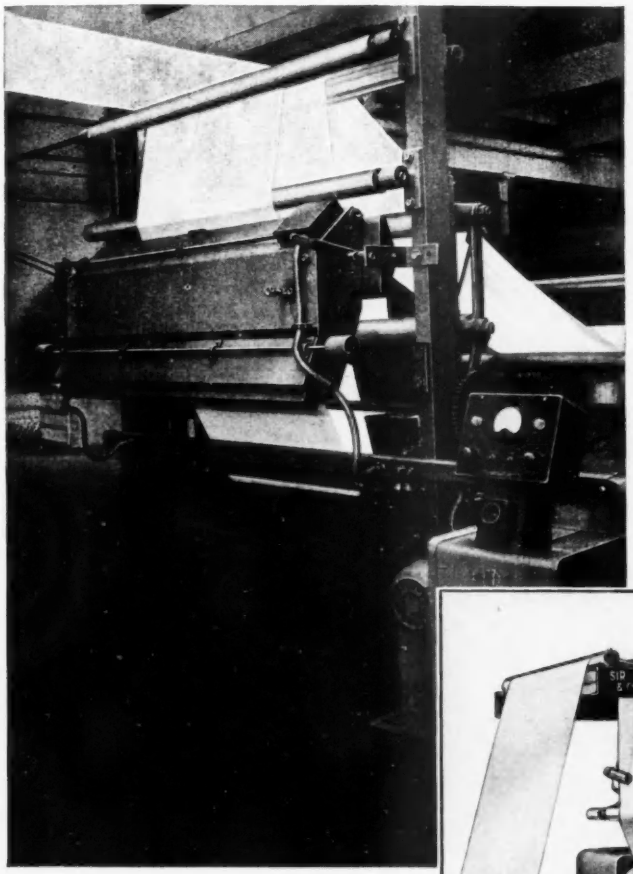
from Farmer Norton



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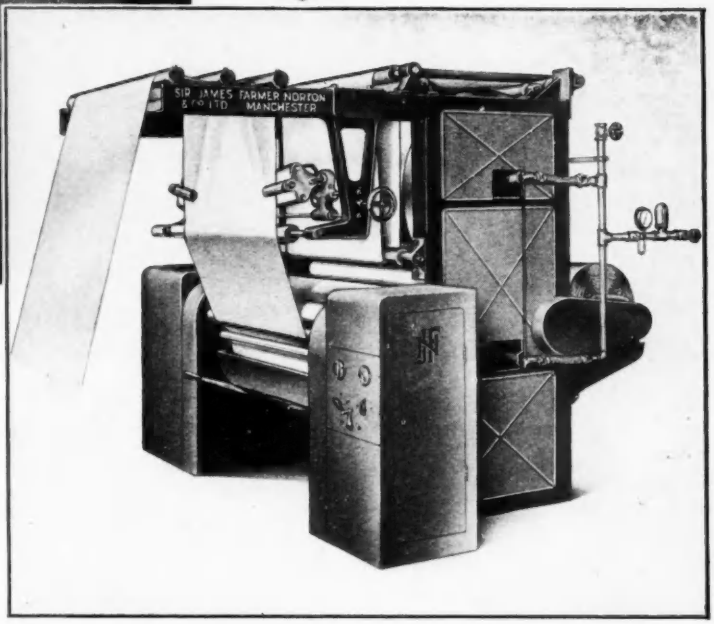
Patent new open width Washing Machine.

New, Multi Cylinder Flash Steamer.



We will be glad to see you on

STAND No. 1111

to show you these new machines and discuss any machinery problems you may have.

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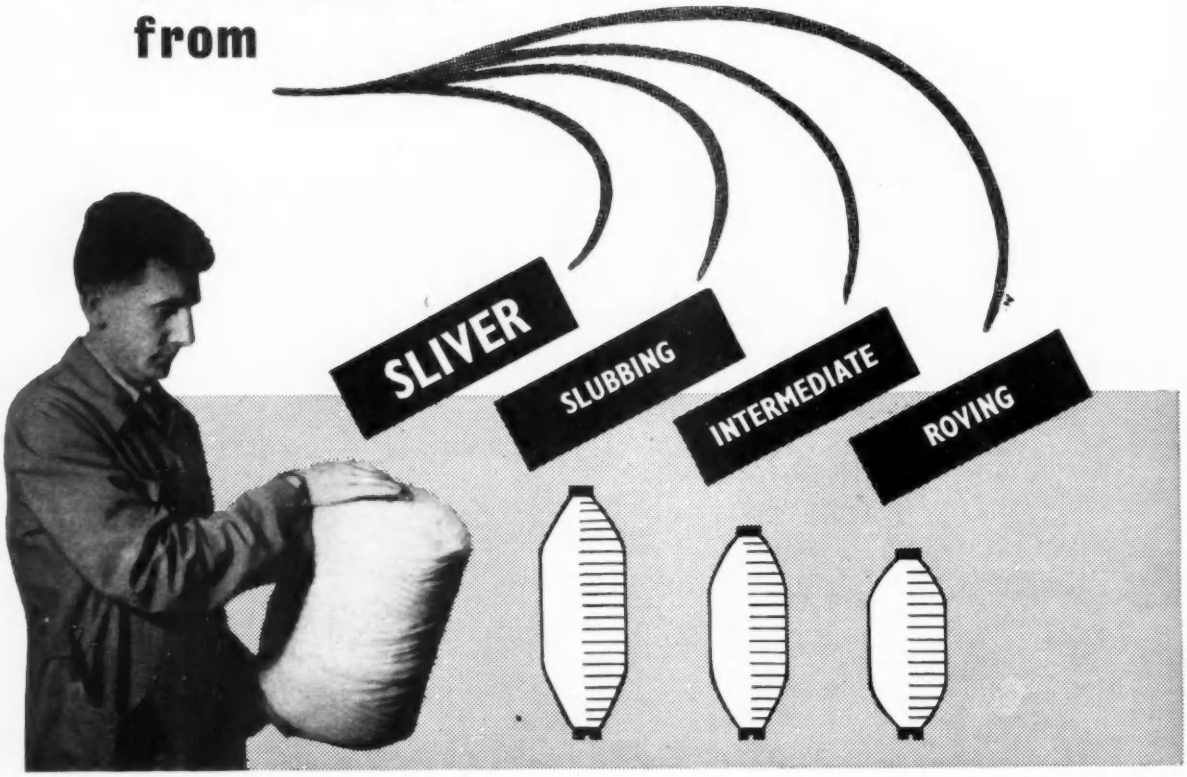
Balmes

NEW DRAFTING SYSTEM

A certain method of improving yarn quality from



can be seen in operation on

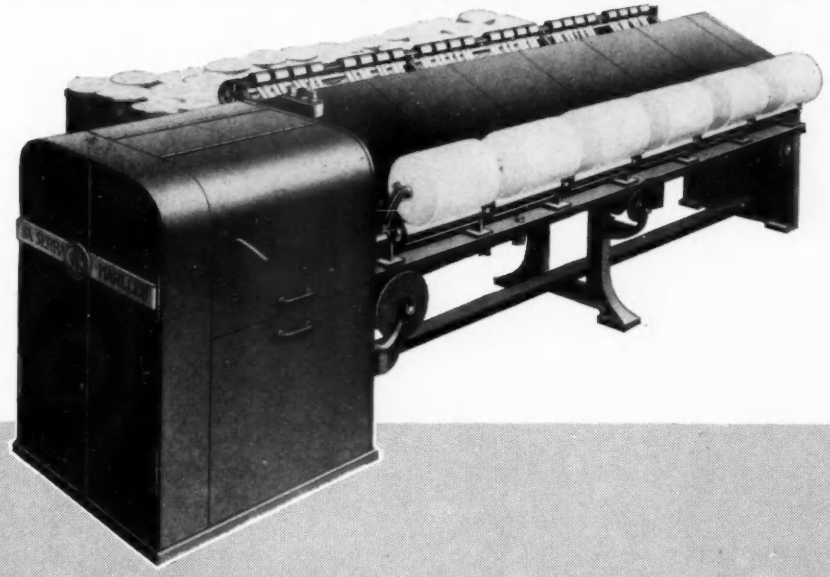
STAND 1314

And on Stand 1113 (Richard Threlfall Limited)

BALMES (ENGLAND) LTD., SPRINGFIELD WORKS, BRADFORD ST., BOLTON.

At last! sliver to yarn spinning *really is* a practical proposition with the revolutionary

SERRA SLIBOMATIC



This machine is an entirely new concept and has been designed especially for Sliver-to-Yarn spinning. Produces bobbins of over 7 lbs. weight (15" long and 10" diameter when full) and these can be accommodated on ordinary ring frames down to 2⅝" spindle gauge.

* Necessity of fly frames entirely eliminated.
* Improves the quality of yarn produced.
* Modern design.
* Electric stop motion.
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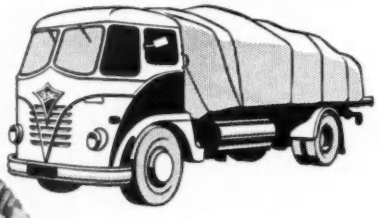
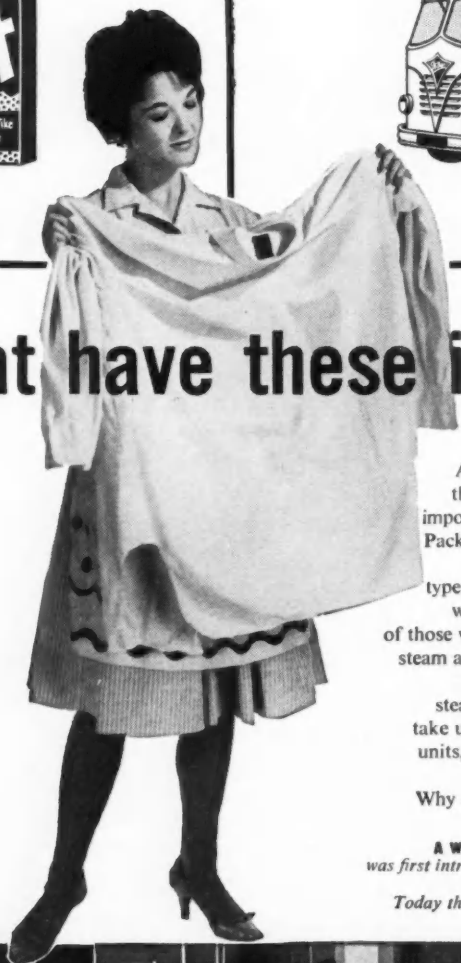


FODEN

What have these in common?



At first sight there isn't much connection, but the well-known products shown here have one important thing in common—G.W.B. Powermaster Packaged Boilers helped to make them all. Today over 400 Powermasters are in use in every type of business and industry, and the famous firms whose products are shown here are only a few of those who use Powermasters to provide economical steam and hot water. Powermaster Packaged Boilers are available in a range with 500-20,700 lbs. steam/hr. with pressures of up to 250 p.s.i. They take up to 50% less space than conventional boiler units, provide smokeless operation, rapid start-up, easier maintenance and reduced fuel costs. Why not find out more about Powermaster today?

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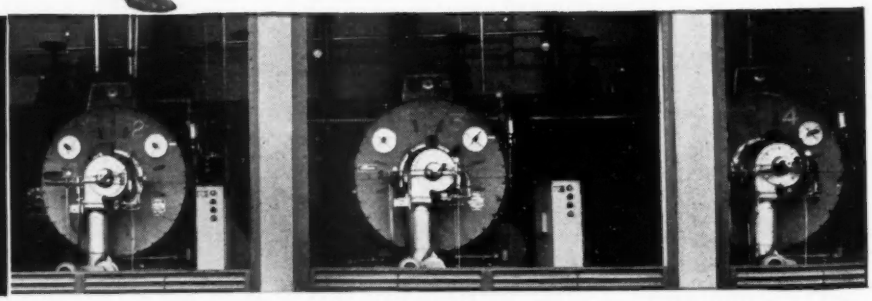

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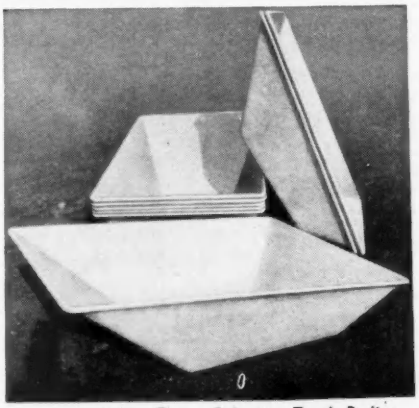

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FOR HIGH PRODUCTION COMBING

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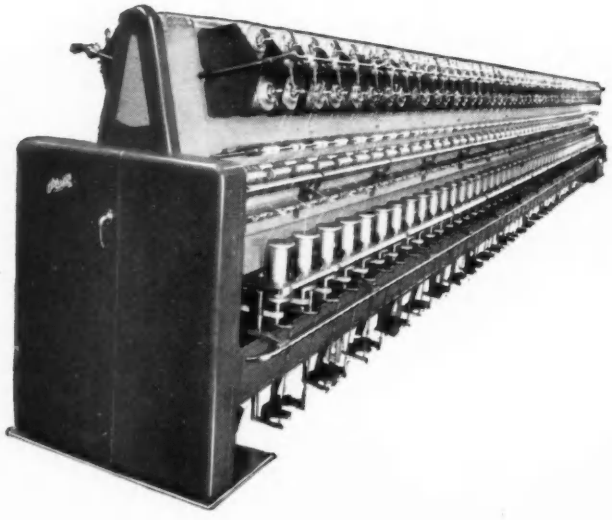

FOR OPTIMUM PACKAGE SPINNING

OPTIMUM PACKAGE SIZES

Although large package spinning has resulted in considerable economies for many concerns, it is essential that a clear distinction should be drawn between "maximum" and "optimum" packages. Basically, the problem is that some costs increase with package size, while others decrease. It often happens, therefore, that the most suitable size for a given set of conditions will not be the maximum determined by technological considerations alone.

To illustrate this point, we are showing two machines—a 12″×7″ MS.2 Slubber and a 9″×2″ MR.3 Ring Frame, both optimum sizes for certain conditions.

MS.2 SPEED FRAME

This modern high efficient machine, equipped with "Arro" flyers is quiet running, easy to operate and is available with a variety of drafting systems.

'TREX' TEXTILE MACHINERY EXHIBITION
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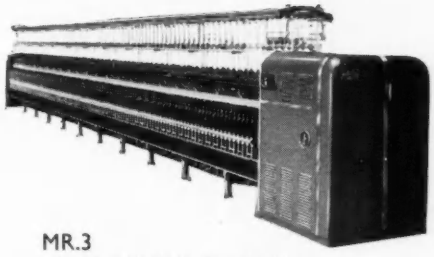

MR.3
RING SPINNING FRAME

An all-count, general purpose machine of elegantly simple design and inherent flexibility which is remarkably clean in operation, reduces operative work loads and results in smoother running and maintenance costs.

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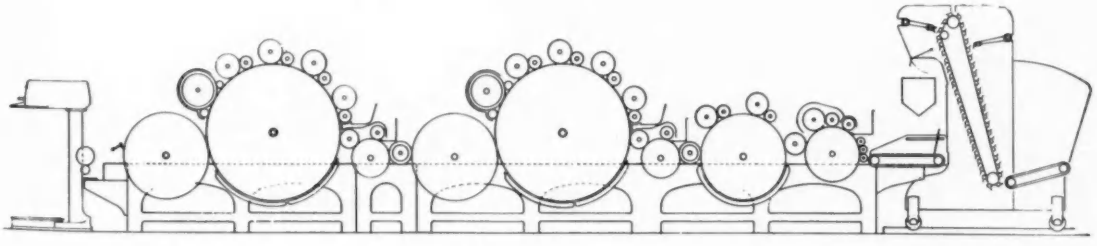
This new narrow type Continental worsted card offers valuable savings in floor space and gives increased production per square foot of floor area.



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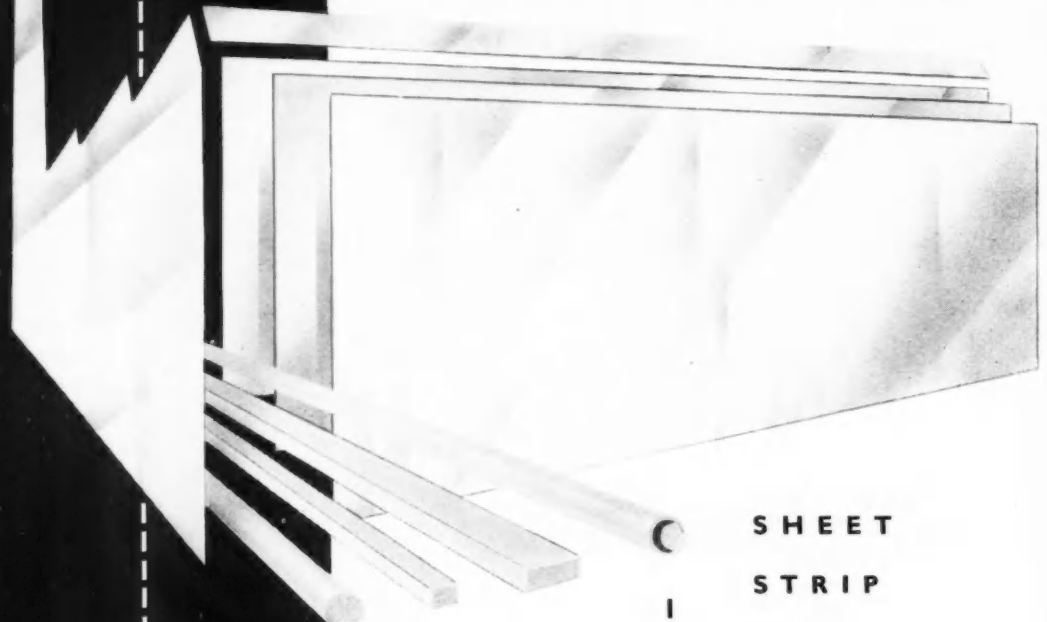

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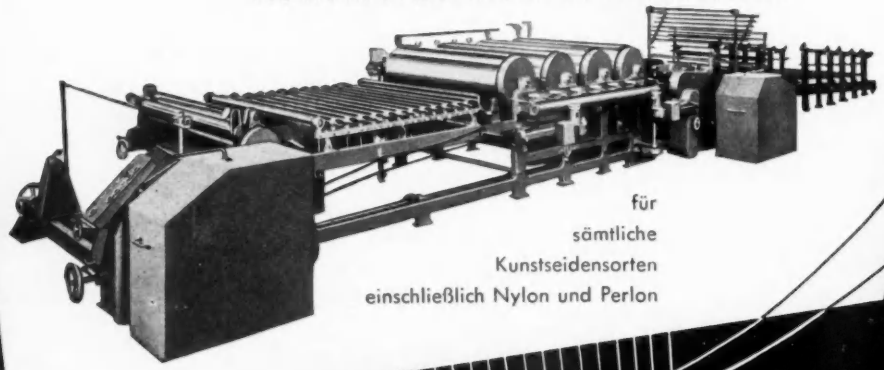

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«Uster» Dropper Pinning Machine
«Zellweger» Reed-Drawing Machine

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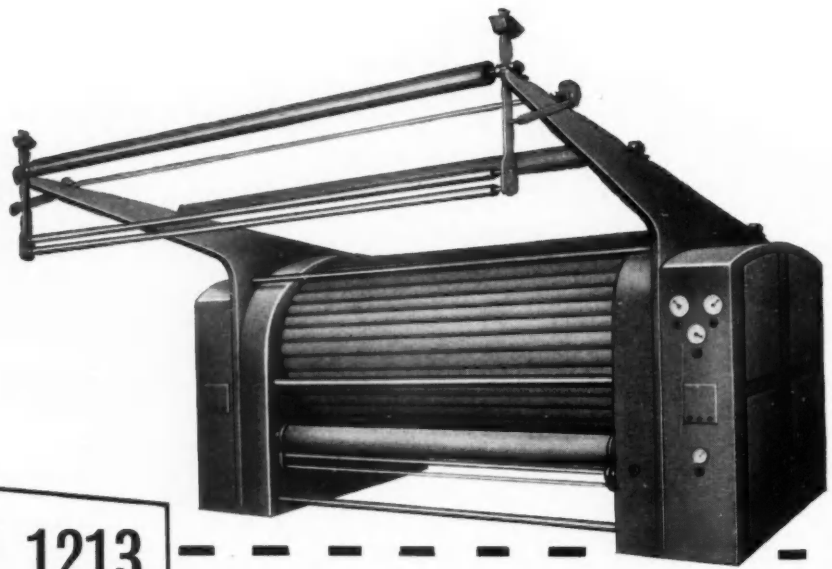

STAND 1213

INTERNATIONAL TEXTILE MACHINERY & ACCESSORIES EXHIBITION

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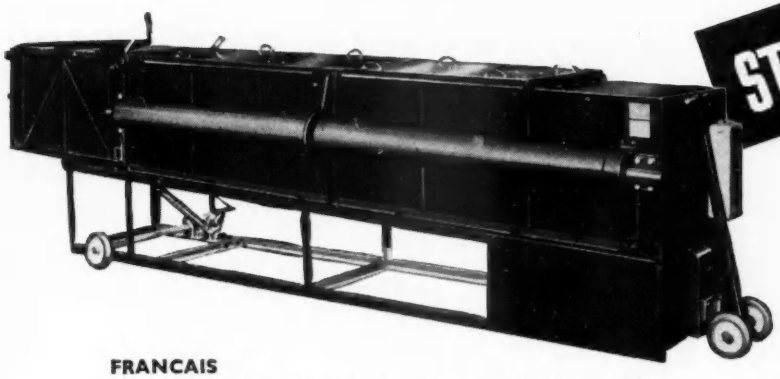

STAND 1317

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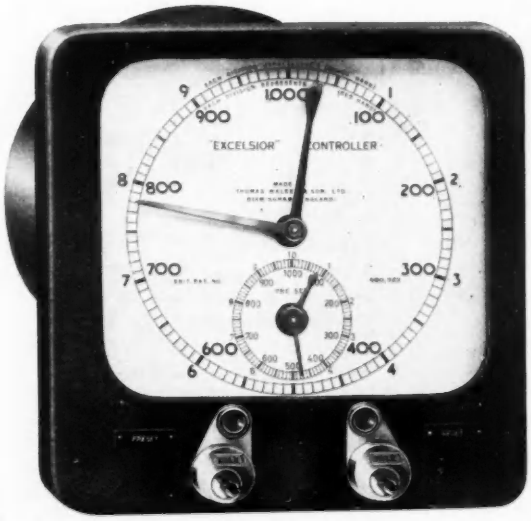

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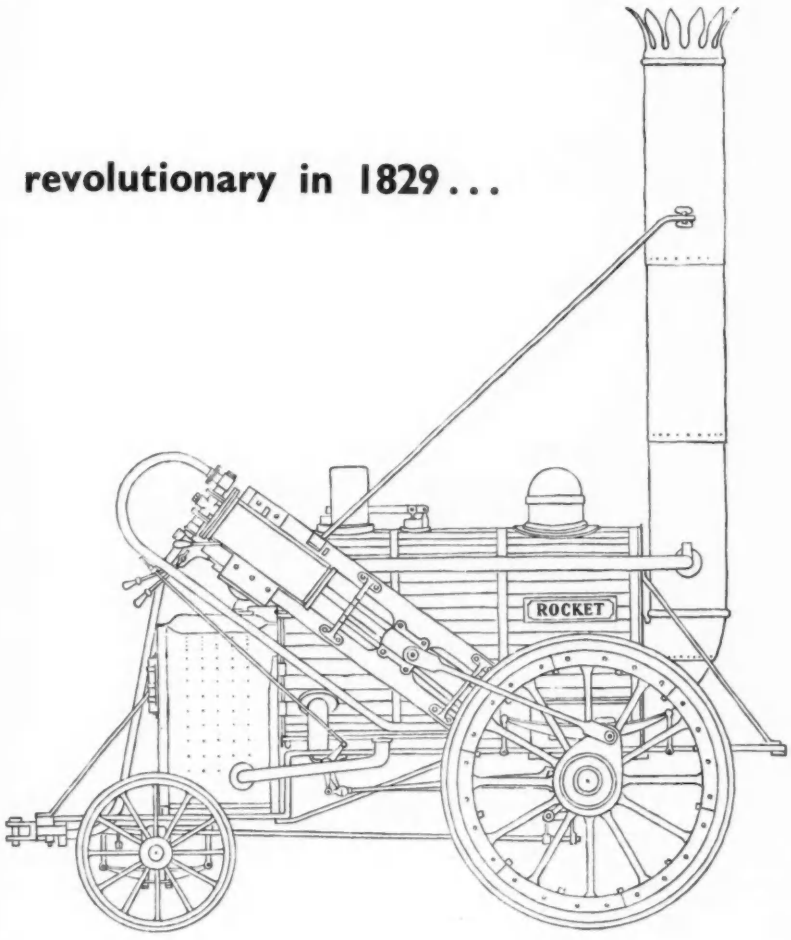

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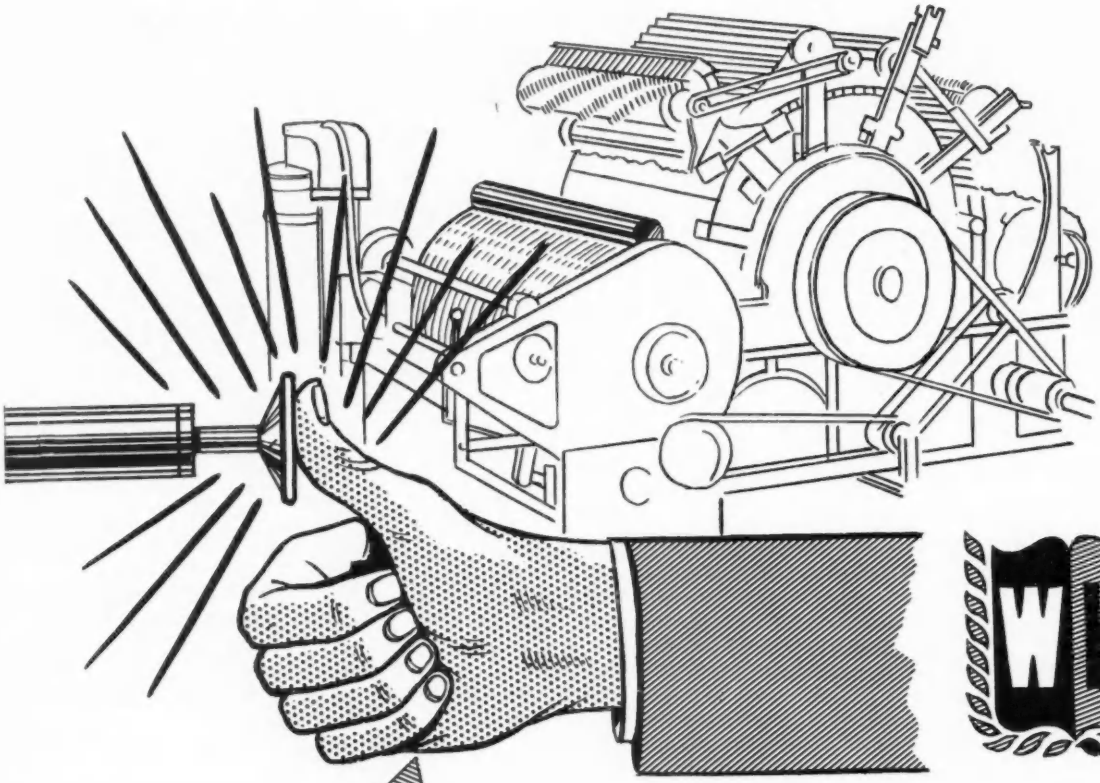

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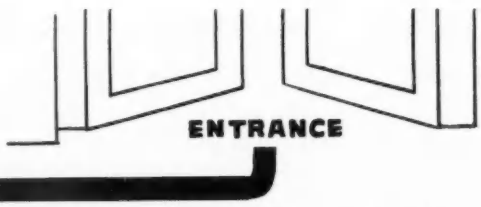

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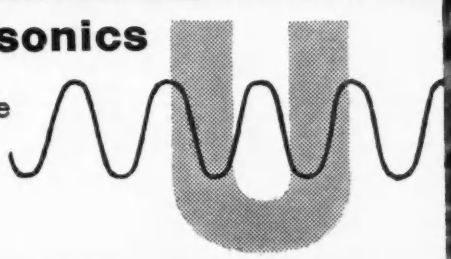

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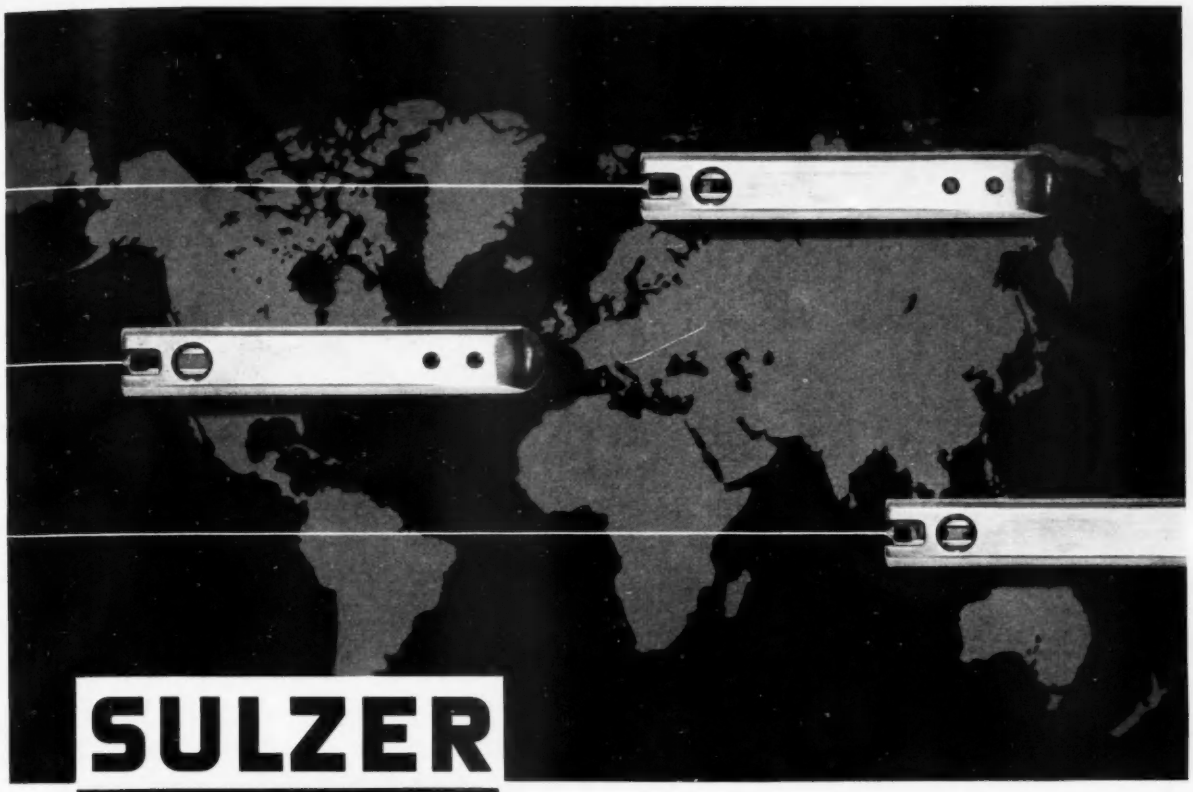

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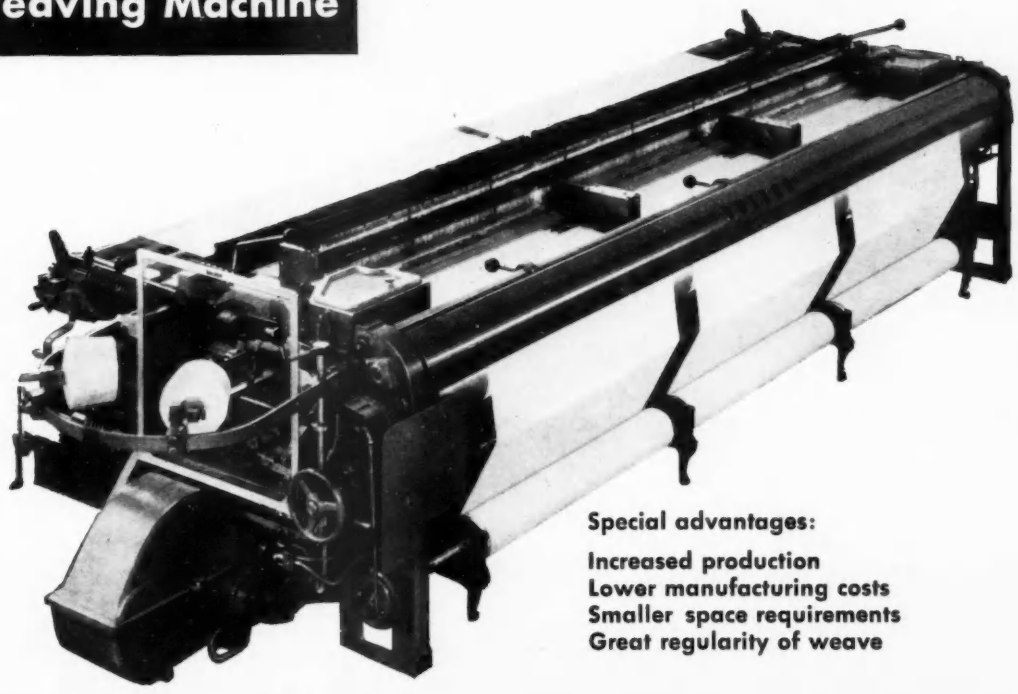

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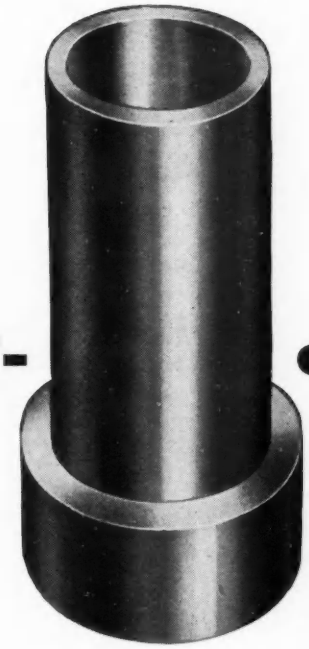

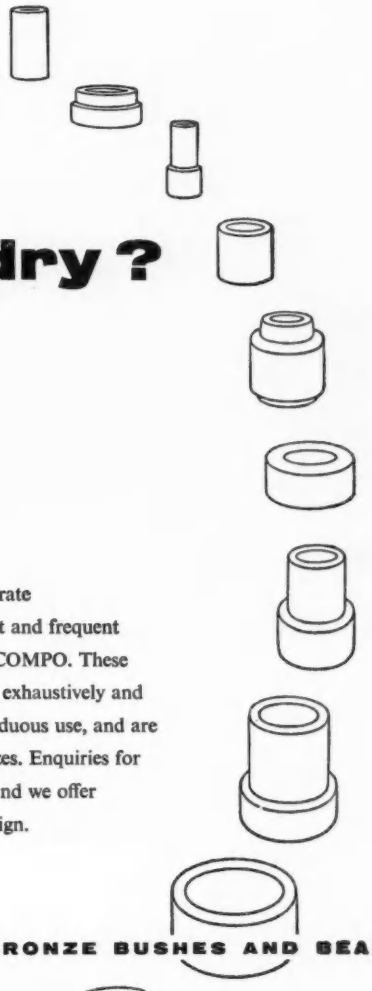

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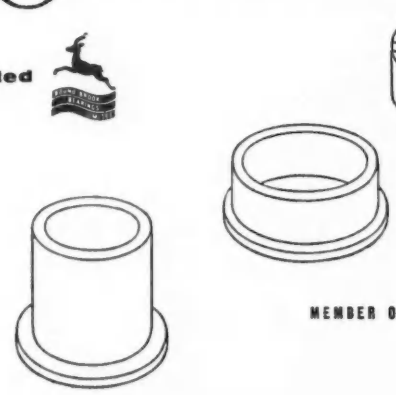

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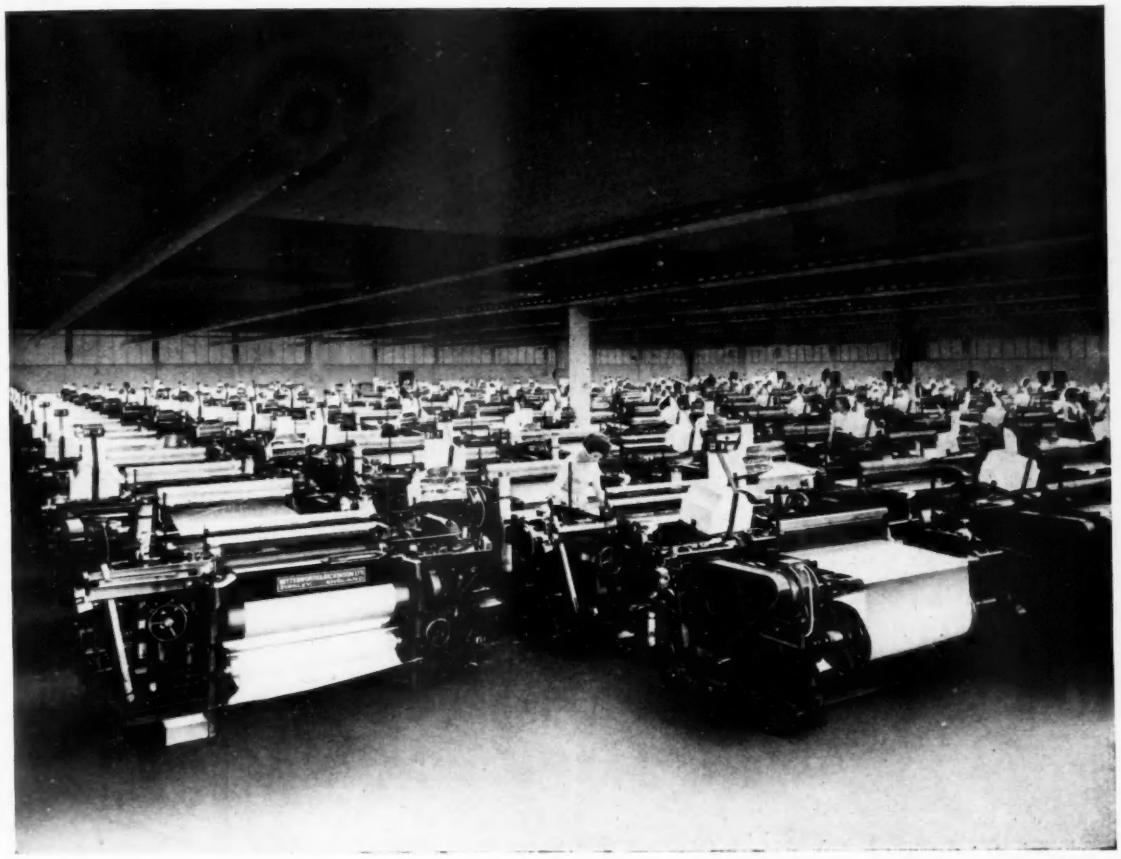

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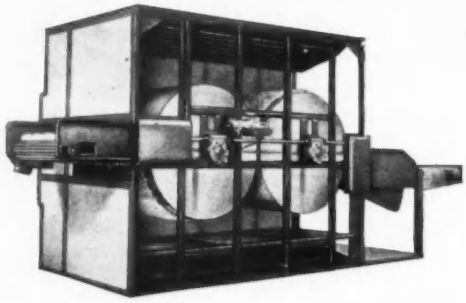

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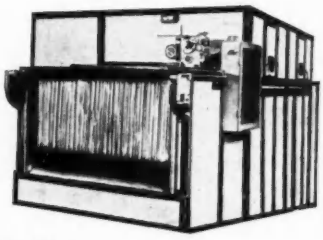

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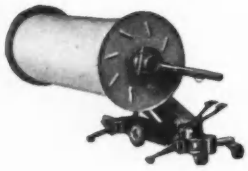

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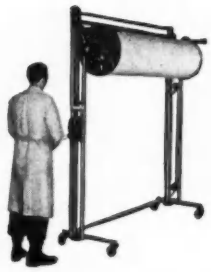

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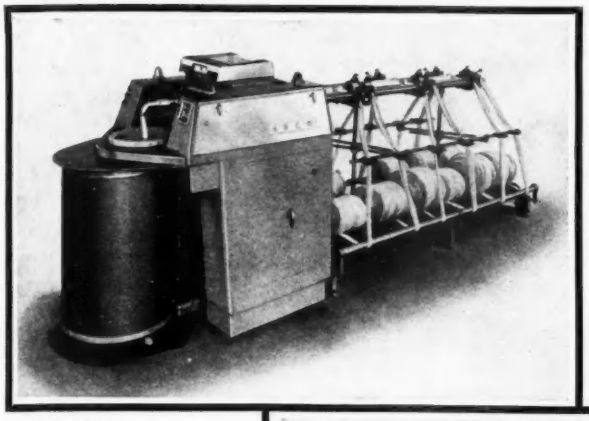

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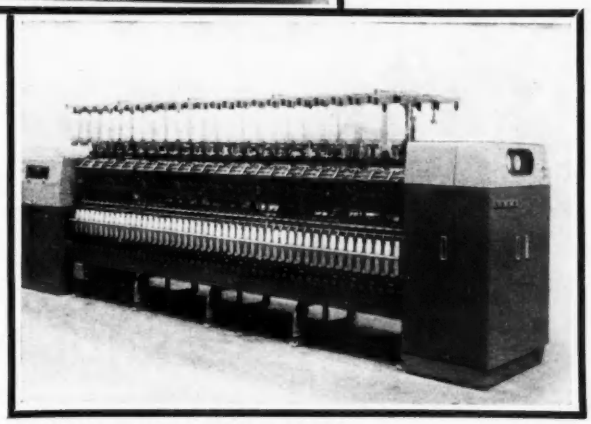

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INDEX TO REVIEW OF EXHIBITS

Adolff, Emil ... 47
Angus, George and Co. Ltd. ... 84
Armstrong Cork Co. ... 72
Arundel, Coulthard and Co. ... 66
Atkins, Fulford Ltd. ... 76

Baer, Henry and Co. ... 48
Balmes (England) Ltd. ... 43
Barber and Colman Ltd. ... 30
Benker Co. Ltd. ... 37
Benninger Engineering Co. Ltd. ... 83
Benton and Stone Ltd. ... 41
Bibby, T. and Co. Ltd. ... 64
Bodden, Wm. and Sons Ltd. ... 36
Bolton, Thomas and Sons ... 75
Boucher and Co. Ltd. ... 72
Bound Brook Bearings Ltd. ... 69
British Northrop Co. ... 60
British Nylon Spinners Ltd. ... 42
British Picker Co. Ltd. ... 29
British Rayon Research Assn. ... 64
British Thomson Houston Co. Ltd. ... 39
British Tufting Machinery Ltd. ... 58
Broadbent, Thos. and Sons ... 60
Brook Motors Ltd. ... 50
Brown, David, Industries Ltd. ... 47
Bruckner, Kurt, Trockentechnik ... 56
Butterworth and Dickinson Ltd. ... 32

Callaghan, A. E. and Son Ltd. ... 84
Card Clothing and Belting Co. ... 84
Carding Specialists Co. Ltd. ... 37
Carrier Engineering Co. Ltd. ... 81
Carter Gears Ltd. ... 78
Casablancas ... 39
Cheetham, H. and Co. ... 47
Cook and Co. ... 55
Cooper Bros. Ltd. ... 54
Crabtree Textile Accessories Ltd. ... 84
Croft's (Engineers) Ltd. ... 58
Crompton and Knowles Inc. ... 49
Croon and Lucke, Maschinenfabric Mengen ... 18
Crowther Ltd. ... 69

Dalglish, John and Sons ... 34
Dapag (1943) Ltd. ... 54
Davidson, MacGregor Ltd. ... 47
Dayton Rubber Co. Ltd. ... 83
Delarue, D. and Cie. ... 43
Dewey and Almy Ltd. ... 81
Dobson and Barlow Ltd. ... 45
Dodd, S. and Sons ... 52
Dracup, Samuel and Sons ... 29
Drayton Regulator and Instrument Co. Ltd. ... 49
Dronsfield Bros. ... 50
Drytester, S.a.r.l. ... 75
Dunlop Rubber Co. ... 57
Durrant, G. and Sons ... 32

Eadie Bros. and Co. ... 37
Electrical Productions (Leeds) Ltd. ... 41
Ellison, George Ltd. ... 52
English Card Clothing Co. Ltd. ... 30
Erhardt and Leimer ... 76
Erskine, Heap and Co. Ltd. ... 42
Excelsior Fibre Co. ... 45

Fairway Engineering Co. ... 40
Farmer-Norton, Sir James, and Co. Ltd. ... 50
Farrell Machine Tool Co. ... 39
Fenner, J. H. and Co. ... 47
Fischer, George Ltd. ... 52
Fischer, Oskar ... 35
Fleissner Ltd. ... 40
Fletcher Miller Ltd. ... 70
Foxwell, Daniel and Son ... 54
Freeman, Taylor Machines Ltd. ... 79
Frohlich, E. Ltd. ... 75

Galileo, Officine ... 84
Ge, Mario ... 69
Gilbos, Ateliers de Construction ... 73
Gorickewerke, Nippel and Co. ... 81
Greenwood, H. S. and Sons ... 39
Grob and Co. Ltd. ... 77
Guest, Keen, and Nettlefold Ltd. ... 46
Gusken, Jean, G.m.b.H. ... 80

Haigh, John and Sons Ltd. ... 47
Hardaker, J. T. Ltd. ... 38
Hattersley, George and Sons ... 29
Heal, J. H. and Co. ... 79
Heath, G. H. Ltd. ... 46
Heatley and Son Ltd. ... 40
Hengstler, J. K. G. ... 42
Hibbert, Joseph and Co. ... 33
Hoffmann, Tweedales Ltd. ... 79
Holdsworth, James and Bros. ... 44
Holt, Thomas Ltd. ... 67
Hordern, Richmond Ltd. ... 37
Hunt and Moscrop Ltd. ... 37

Ina Needle Bearings Ltd. ... 42

Jaeggli, Jakob and Cie. ... 71
Jagri, G.m.b.H. ... 53

Keay, Thos. C. Ltd. ... 45
Kenyon, William and Sons ... 45
Klimatechnik ... 67
Kovo Ltd. ... 77

Light Alloy Construction Co. ... 35
Livesey, Henry Ltd. ... 51
Longclose Engineering Ltd. ... 44
Lund, T. and Sons Ltd. ... 68

Mahlo-Heinz ... 66, 70
Manchester Metal Works ... 41
Manganese Bronze and Brass Co. Ltd. ... 70
Marion, Chaudronnerie ... 70
Mather and Platt Ltd. ... 49
Meiners' Optical Devices Ltd. ... 54
Mellor, Bromley Ltd. ... 40
Memmingen, Maschinenfabric ... 80
Menschner, Johannes ... 30
Mettler's, Fr. Sons ... 57
Metropolitan-Vickers Ltd. ... 56
Milford, Astor Ltd. ... 65
Monsanto Chemicals Ltd. ... 73
Moore and Avery Ltd. ... 57
Morel Freres, Etabs. ... 45
Mundinger, K. P. ... 48
Muschamp Textile Machinery Ltd. ... 69

Northern Mill Supply Co. ... 63
Noton, S. Ltd. ... 61

Orme, George and Co. ... 35

Parks-Cramer (G.B.) Ltd. ... 35
Pegg, Samuel and Son ... 53
Pilkingtons Ltd. ... 30
Plastics, V. and E. Ltd. ... 38
Platt Bros. Ltd. ... 46
Platt, J. W. and H. Ltd. ... 51
Plutte, Koecke and Co. ... 74, 81
Pneumatic Conveyors Ltd. ... 56
Prince-Smith and Stells Ltd. ... 32

Rabofsky, Karl, G.m.b.H. ... 61
Radcliffe Engineering Co. ... 77
Ramisch, Dr. and Co. ... 35
Ratti, Michele ... 68
Rawlplug Co. Ltd. ... 73
Reeder, Thomas Ltd. ... 61
Reiner, Robert Ltd. ... 69
Renold Chains Ltd. ... 32
Revol Ltd. ... 83
Riley, T. W. Ltd. ... 53
Ruti Machinery Works ... 72

S.A.M.C. ... 75
Sample Weaving Machine Co. ... 64
Sanderson and Co. ... 31
Saurer, Adolf, A. G. ... 57
Scaglia, Martino ... 44
Scharer Machine Works ... 75
Schlafhorst, W. and Co. ... 76
Schlumberger, W. and Cie. ... 61
Schweiter Ltd. ... 74
Schultheis, Walter and Co. ... 78
Scragg, Ernest and Sons ... 71
Scragg, S. and E. Ltd. ... 71
Sellers and Co. Ltd. ... 67
Seira, S. A. ... 42
Shaw and Marvin Ltd. ... 66
Shaw Moisture Meters Ltd. ... 59
Sheridan, Croxted Ltd. ... 31
Shirley Developments Ltd. ... 59
Silentbloc Ltd. ... 66
Skefko Ball Bearing Co. ... 36
Small and Parkes Ltd. ... 42
Smith, F. and Co. ... 80
Smith's Industrial Instruments ... 81
Spaleck, Max, G.m.b.H. ... 78
Spencer and Halstead Ltd. ... 68
Spirax-Sarco Ltd. ... 40
Spooner, Dryer and Engineering Co. Ltd. ... 59
Stabel Products Ltd. ... 64
Stains—Soc. de Construction Mecaniques ... 38
Standfast Dyers and Printers ... 62
Stanier, H. and Co. Ltd. ... 82
Stanvix Manufacturing Co. ... 66
Staubli Bros. and Co. ... 78
Stephens, Ira Ltd. ... 31
Sterling Metals Ltd. ... 34
Stubbs, Joseph Ltd. ... 43
Stutz and Cie. ... 75
Sulzer Bros. ... 31
Superbuilt Products Ltd. ... 41
Swindells Engineering Co. ... 69

Tatham, William Ltd. ... 55
Tattersall's and Holdsworth's ... 82
Tatton, Wm. and Co. ... 59
Telegraph Condenser Co. ... 80
Tellus Super Vacuum Cleaner ... 68
Thies, B. ... 70
Thompson Textessories Ltd. ... 58
Threlfall, Richard Ltd. ... 51
Tomlinsons (Rochdale) Ltd. ... 44
Torrington Co. Ltd. ... 68
Trion and Vosseler ... 76
Trumeter Co. Ltd. ... 62
Tufnol Ltd. ... 44
Turbo Machine Co. ... 82
Turner, Ernest and Co. ... 71
Tweedales and Smalley Ltd. ... 65

Universal Winding Co. ... 63
Uttley, F. and Sons Ltd. ... 35

Vollenweider, Sam Ltd. ... 84

Walker, P. M. and Co. ... 78
Warin, Gordon Ltd. ... 34
Weldon and Wilkinson Ltd. ... 68
West, Allen and Co. ... 78
Weston-Evans and Co. ... 55
White, Child and Beney ... 77
Whiteley, E. Gordon Ltd. ... 73
Whiteley, Wm. and Sons Ltd. ... 77
Whitin Machine Works ... 48
Whittle, T. and Sons ... 78
W. H. K. Products Ltd. ... 48
Wilson and Longbottom Ltd. ... 62
Worcester Royal Porcelain Co. ... 58
Wright Hargreaves Engineering Co. Ltd. ... 79

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CONTENTS

	Page
Progress and Prospects in the Wool Textile Industry .. .. WOOL INDUSTRIES RESEARCH ASSOCIATION.	1 - 6
Man-Made Fibres: Major Recent Developments .. .. R. W. MONCRIEFF, B.SC., F.T.I.	7 - 11
The British Cotton Industry in the 1950's .. .. D. SHAW, M.A.	12 - 16
Research and Technical Developments in Cotton Spinning and Weaving .. .. A. CROASDALE, F.T.I.	17 - 22
Developments in Linen and Jute Manufacture .. .. S. A. G. CALDWELL, F.T.I.	23 - 28
Stand by Stand Review of Exhibits	29 -84

WHERE NOW?

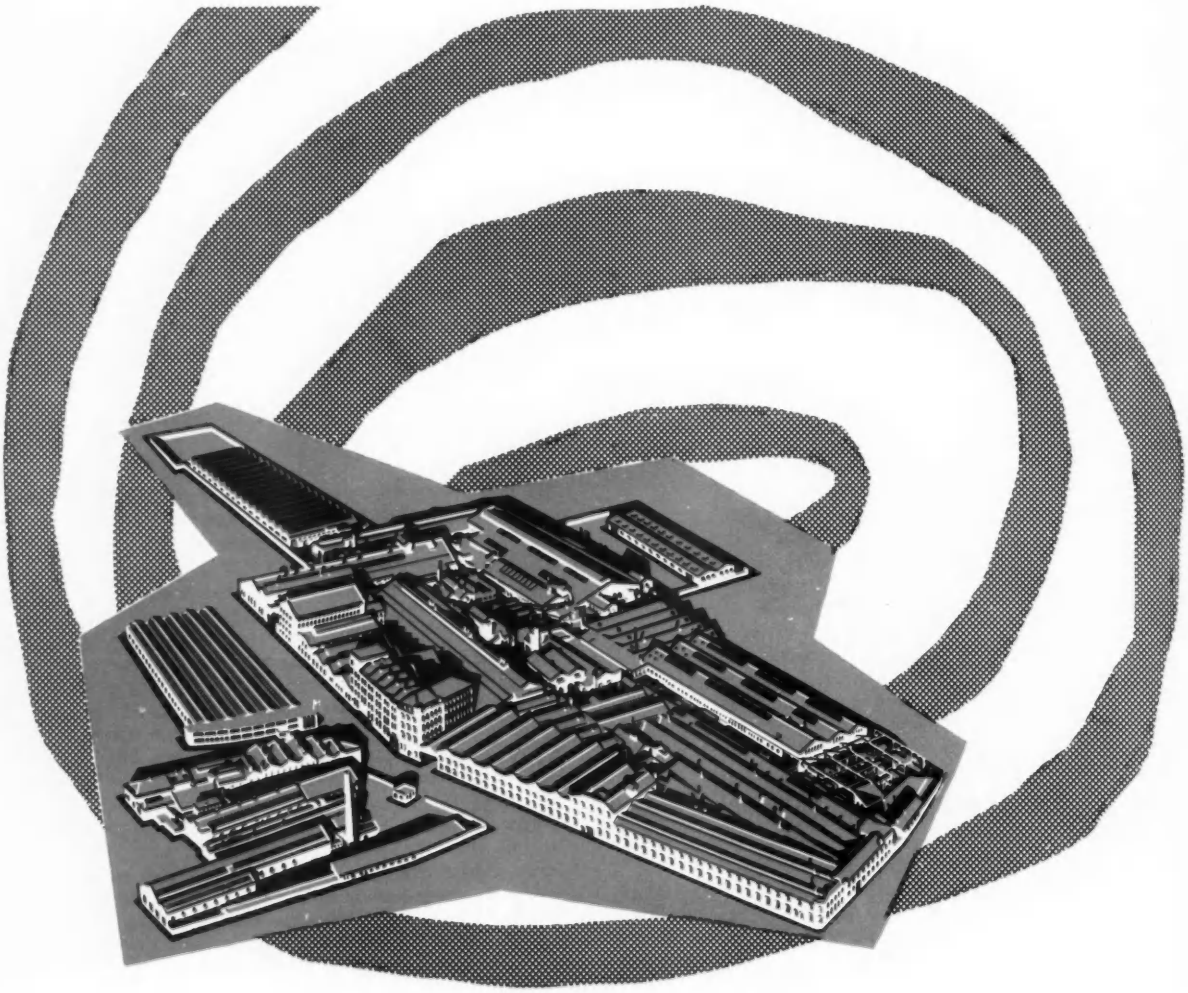
SURPASSING any event of its kind ever held in this country before, this latest exhibition at Belle Vue, Manchester, of textile machinery, accessories and instruments, etc., is of tremendous importance and significance. Prevailing political and economic uncertainties in international affairs, coupled to the depressed state of the textile industries in the U.S. and the U.K., and the reduced activities in Continental textile circles increases substantially the major problems facing those firms and managements struggling to plan ahead. At the time of the last similar exhibition in 1953 signs were already visible on the horizon of the pattern and trend of developments in all textile producing countries. Since then the full extent of the alarming contraction in the U.K. textile industry can only be assessed from the available sombre statistics.

Even the most cursory glance at these reveals that the cotton industry, in particular, has suffered far more than any other section in the overwhelming fight to keep machinery and operatives employed at reasonable levels. Factors largely beyond the control of the industry have resulted in the permanent closing of many mills together with a state of unemployment not experienced since the 1930's. Falling demand in the home market, further losses in the remaining few overseas markets regarded as exclusively British and—far more damaging in its direct and indirect effects—the steadily mounting unchecked imports into the U.K. of foreign yarns, cloth and made-up garments have culminated in a state of affairs best described as chaotic. Under these circumstances, all remaining initiative could easily slide into irretrievable depression. The industry, in general, is not without criticism for the present impasse. Lack of co-operation between the various producing, merchanting and distributing sections has been singularly noticeable, although the twin problems of making machinery and finding new markets whilst maintaining established outlets for finished goods from all natural and man-made fibres are strongly related to one another.

In common with the other industries, the textile industry has been adversely affected by the vicious inflationary circumstances and shrinking markets and profits. Added to this, many firms also find that their financial reserves are now totally inadequate to meet the large amount of capital needed to cover the cost of complete or even partial re-equipment on a scale sufficient to ensure the much higher efficiencies and productive economies necessary to face present and future competitive conditions.

Although this may give the impression that the industry as a whole has done little to help itself, it must not be forgotten that well over £200,000,000 has been spent on capital account in the last ten or twelve years. This fact alone emphasises the magnitude of the problem whilst at the same time showing how important the industry still is and the vital role it plays in the national economy. The overall contraction in productive capacity and the permanent loss of skilled labour has now reached serious proportions—a dangerous level where, if the industry was faced with a sudden emergency, it would not be able to fulfil its obligations.

Government reactions in recent years have left the impression that the industry must work out its own salvation. Apart from the subsidy offered over ten years ago to the spinning section of the cotton industry towards the cost of re-equiping, little has been done to put the entire industry on a sound national footing. In efforts to find solutions to the problems afflicting the industry, the most urgent need is for all sections to submerge conflicting negative attitudes in a common aim in which no promising avenue could be left unexplored. Some measure of protection—at least for a period—is obviously desirable for the home market without harming either importers or exporters, also plans formulated for providing where necessary modern machinery as quickly as possible. Recent action by the main banks leads many to wonder whether the mechanism of hire purchase, for example, could be applied to re-equipment. Similarly, would an extension of the methods of sales on approval of expensive ancillary equipment, accessories and instruments, etc., instil any measure of confidence or encouragement? The textile industry will always have a major part to play in the economy of this country and with goodwill and determination on all sides can still achieve remarkable results. In the last ten years few, if any, industries have shown more progress in materials and machinery developments. The present extremely difficult problems are not insuperable and the exhibition provides a wonderful opportunity to study this compact cross-section of all that is best in machinery and equipment. In this connection also, the *Textile Manufacturer* Supplement pin-points the most important technical and scientific developments during the past four or five years. Together with the brief details of all that is on view, it comprises a volume of concise information of immense value to those concerned with the industry's future.



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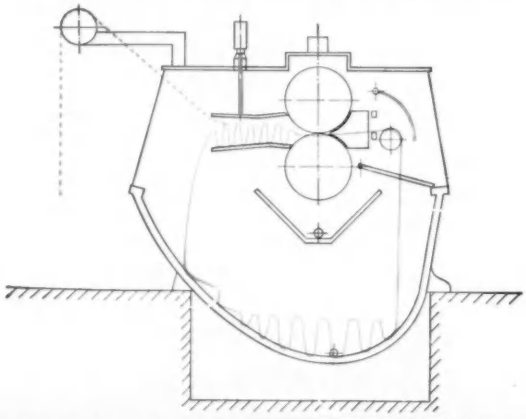

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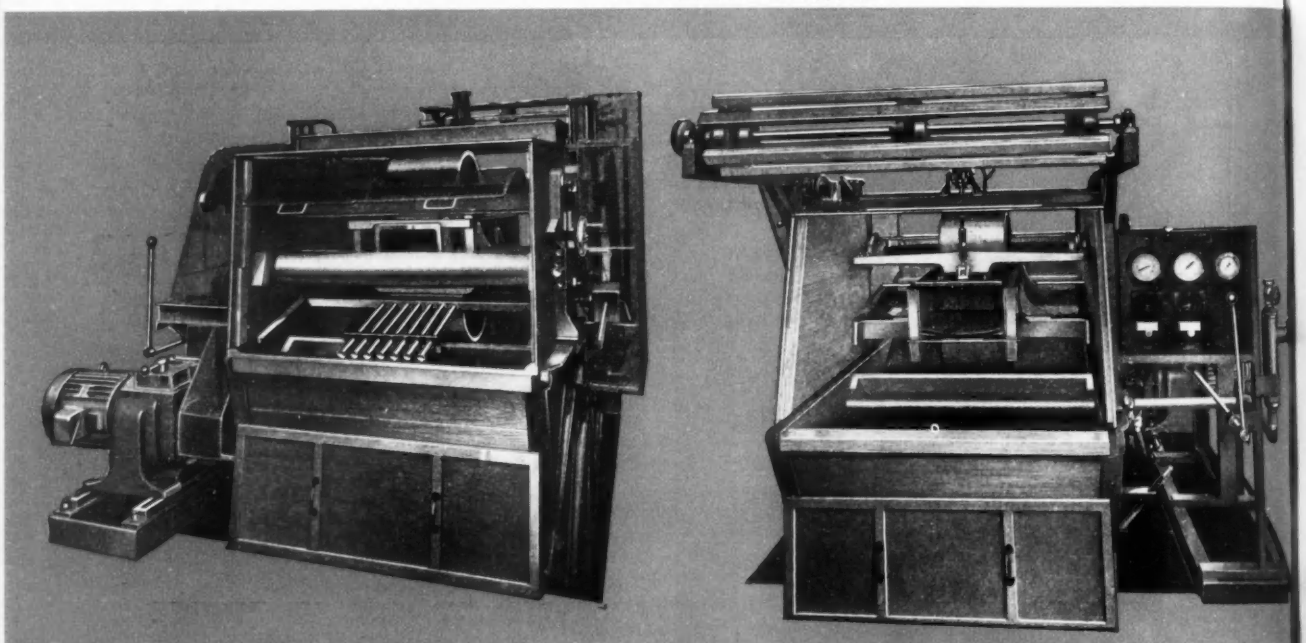

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Progress and Prospects in the Wool Textile Industry

A review of developments in the twin fields of science and technology in methods of testing for yarns and fabrics, woollen processing, wool scouring and combing, worsted drawing and spinning, weaving on automatic and non-automatic looms, and new techniques in dyeing and finishing

Contributed by the WOOL INDUSTRIES RESEARCH ASSOCIATION

DURING the past five years there have been many indications of a new outlook and a new spirit in the wool textile industry. There are signs that the results of wool research are being regarded with a new attitude: findings that at one time might have been considered only of academic interest are now seen to be of practical importance. In his introduction to the sixth annual report (Feb. 1958) of the Wool Textile Research Council the chairman, Mr. Baines, remarked on the close relationship between fundamental research and processing practice. He pointed out that studies of the way in which the cross links in the wool molecule can be broken and reformed lead to a better understanding of such processes as steam-setting: that the electron microscope can reveal how wool is damaged in scouring, carbonising and carding: that knowledge of the membrane now known to exist beneath the wool scales can lead to milder methods of dyeing that would be less harmful to the good properties of wool. These are the opinions of a man as well equipped as any to know what investigations and enquiries are of real economic interest to the industry. Incidentally, this was the first annual report of the Research Council to be made available to the Press—an innovation that was much appreciated by textile journals, and newspapers in textile districts.

Many conferences held during the last three years have had the object of bringing science to bear on the problems of industry. The theme of the 1955 Worsted Spinners' Conference was "Science and the Spinner." That section of the industry has given much thought to such matters since the advent of the Ambler "Superdraft" and the Raper "Autoleveller." The "Autoleveller" was a break with tradition: both in the method of worsted drawing, and in the way such advances can come about when an individual inventor, the Research Association and progressive firms all contribute to the successful result.

Science and Technology

The year 1955 saw the first great International Wool Textile Research Conference in Australia, when over 250 scientists gathered together to discuss existing knowledge of the science and technology of wool. Special emphasis was given to fundamental biological, chemical and physical aspects of the wool fibre; but one session was devoted to considering how the producer of wool can best meet the needs of the textile industry, and other sessions were concerned with the manufacturing processes from raw wool scouring to cloth finishing.

The International Conference of Wool Scientists, which met in London under the sponsorship of the International Wool Secretariat (Nov., 1957) stressed the conception of "Easy Care" wool garments. This conference was attended by the directors of wool research organisations in many countries, and they considered what steps should be taken to enable wool to stand up to the growing competition of the man-made fibres. The ideals to be aimed at are that wool fabrics should be resistant to shrinkage in washing, highly resistant to unwanted creasing, retentive of pleats in skirts and creases in trousers, repellent to stains, and mothproof. The relevant processes must be cheap, easily applied and controlled, and must not harm the natural good properties of wool such as softness, drape, warmth, and attractive appearance.

At the time of the conference in London much publicity was being given to reports of a new Australian process for putting permanent pleats into skirts and trousers made of all-wool fabric. This has been registered under the name "SI-RO-SET" by the Commonwealth Scientific and Industrial Research Organisation, in whose Geelong laboratories the process was developed. It consists in spraying a weak solution of thioglycollic acid on to the garment and then immediately steam-pressing for a short period. Whilst in England, Australian scientists acknowledged their indebtedness to the work in this field done at Leeds University. Professor Speakman had indeed displayed at the Australian Conference in 1955 pleated all-wool fabric that had not suffered any change after washing. Thus it would seem that the permanent pleating and crease resistance of all-wool fabrics can be obtained by the use of research results already available. Commercial development must depend on the cost of the process and the demand of the public for wool garments with these properties.

The Wool Industries Research Association has been investigating the effect of maturing wool—resting it between processes—on the creasability of fabrics. As so often happens, this enquiry raised the necessity for special testing methods and equipment, for the creasing must be measured in some way. A standard method exists for measuring crease retention in thin fabrics; but this is not altogether satisfactory for wool fabrics, some of which hang in a curve rather than a straight line, causing observer error in the angle of crease. An alternative method has therefore been developed at Torridon in which a small specimen of the fabric containing the crease

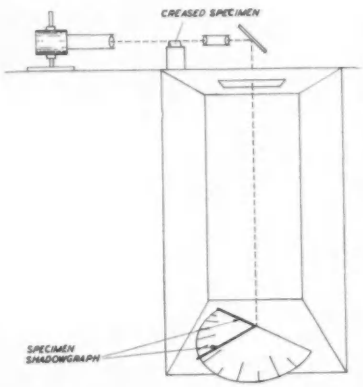


Fig. 1. Measurement of crease resistance in wool fabrics

rests on a horizontal plane (Fig. 1). An image of the crease is projected on to a screen and the angle of the crease can then be readily measured without appreciable observer effect. This is by no means yet a standard test and may well be modified, but it exemplifies the need for devising new methods of testing to deal with the industry's current problems.

One outcome of the London Conference of Wool Scientists was that the Wool Industries Research Association has undertaken a project which aims at combining the shrink-resist processes already developed at Torridon with some method of preserving the shape as well as the size of a garment during and after washing. This improved stability should be obtained by the use of setting agents in combination with shrink-resist treatments; the Hosiery and Allied Trades Research Association has already done much useful work on knitting structure in this connection.

A pending change that will affect the everyday affairs of a large majority of all the textile industries is the decision to adopt the "tex" universal yarn count system. The delegates from twenty countries agreed to this unanimously at the June 1956 meeting of the International Organisation for Standardisation. The "tex" system (weight in grammes of one kilometre of yarn) will some day replace the twenty-six different local systems of yarn numbering listed in British Standard No. 947, twelve of which are used in the wool industry. A suggestion for reducing confusion and inconvenience during the change-over period is that there should be a stage during which the traditional count is quoted first followed by the tex count in brackets: and that later the tex count should be put first with the old count following in brackets.

Woollen Processing

There has been no dearth of new machinery and methods of processing during the five-year period under review. Those mentioned below all have some aspect of particular interest, but many innovations of great merit have had to be left out for the lack of space.

A blending device that has been used in the U.S.A. since 1949, but only recently become available in Great Britain is the Dodenhoff, or J. Hunter, fibre meter blending system. This consists of a series of automatic weighing feeders (fibre meters) which discharge pre-determined quantities of the different components of a blend (one from each feeder) on to a single high-speed conveyor lattice. None of the feeders discharges its load until all hold the correct weight. The lattice leads to an automatic drum blending chamber and this is followed by a further blending stage; finally, the addition of oil or fugitive tint is catered for if required.

The new Spencer and Halstead blending equipment has the advantage that whatever the viscosity of the oil may be, the constancy of flow is assured: a constant amount of oil is delivered in a given time.

A new baling press worthy of note is that patented by Joseph Newsome and Sons Ltd. This consists essentially of two vertical perforated steel cages to the bottom of which the canvas bales or other containers are attached. A weight, which can be traversed from the top of one cage to the other, is allowed to drop, thus compressing the material in the cage and bale—as in pile driving. The filling of the cages alternately allows baling to proceed continuously, and an automatic safety arrangement prevents access to the cage to which the weight has been traversed.

The weight of fibres delivered by the pan of the normal type of woollen card hopper is to a certain extent dependent on the material in the hopper: e.g. whether it is compressed or lofty and whether the hopper is nearly full or not. The device now manufactured by John Haigh and Sons Ltd. has two hoppers, one feeding the other; the rate of feeding from the preliminary hopper is determined by the time required for the weigh-pan to collect fibre and sink. The weight of fibres delivered is thus much more uniform and independent of the material in the main hopper. Other improved hoppers are now available

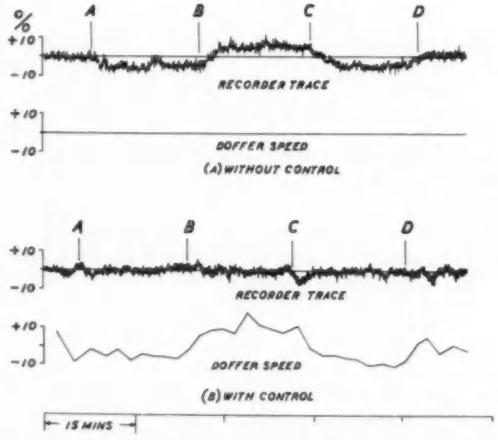
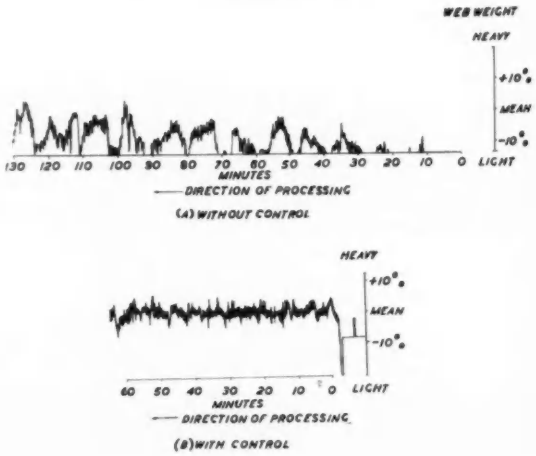


Fig. 2. Levelling action of "Autocount." Changes in feeding conditions. At points A and C hopper made to deliver *less* fibre per weigh. At points B and D hopper made to deliver *more* fibre per weigh

(below) Fig. 3. Levelling action of "Autocount" after fettling



from Platt Bros. Ltd. and Wm. Tatham Ltd.

One of the advantages of the W.I.R.A. "Autocount" is to reduce the effects on the slubbing when sudden changes of input are caused by the hopper being overfilled after running down. Mill observations have shown that there can be as much as 20% change in slubbing count on these occasions: the "Autocount" can reduce this to 5% or less, and the duration of the disturbance is only about one minute instead of up to ten. The "Autocount," which was designed to control the variation arising from long-term changes in the amount of wool reaching the condenser doffer, has now been used in mills under production conditions for up to four years. This mill experience has shown that the "Autocount's" general advantages are:—

(1) **Overall irregularity of a typical machine is reduced by about a third.**

(2) **Useful slubbing can be brought off within two or three minutes of starting up after fettling (if the blend has not been changed and it consists of similar fibres).**

(3) **The "Autocount" provides a permanent record of the performance of the card. For example, the ease and speed with which changes can be made from one lot to another.**

An ingenious method of combining the woollen carding and spinning processes has been devised by Messrs. Spinnbau, in which twist is inserted at the same time as draft by means of a rotating "comb." The fringe of fibres picked up by the rotating "comb" is drawn off from the side as a twisted yarn. Another combined carding and spinning device is the Universal carding and spinning machine. In this, the carded web is divided by a new type of condenser consisting of ridges or grooves and circular knives. The strips of fibres are passed by rubbing aprons to three lines of drawing rollers, between the second and third of which false twist is positively inserted.

Three new types of woollen mule have appeared during the last few years: the Leeds University "electronic" mule, the Charlesworth all-electric mule, and the German hydraulic M.A.K. mule. Previous to the introduction of these there had been little new in principle since 1825 when Roberts made Crompton's mule fully automatic by adding that very ingenious device, the quadrant-winding motion for controlling spindle speed, and the shaper for controlling the faller wires and cop build.

The new Charlesworth mule has separate electric motors for carriage and spindles, so that the spindle speed can be varied at any part of the draw. Backing off time is reduced to a minimum, the spindle driving motor being reversed; this eliminates the need for a relieving motion.

In the "electronic" mule the mechanical headstock, quadrant and variable speed elements are replaced by electrical controls. This arrangement simplifies and reduces the size of the control system; other advantages are ease of adjustment and economy of power consumption per spindle. Another important feature is the inclusion of a servo-loop controlling the rate of winding of yarn with reference to yarn tension and position of counterfaller wire.

The carriage of the German M.A.K. mule consists essentially of a light alloy pipe structure backed at the top by a sheet of light metal. A long axle running through the centre of the pipe is fitted with plastic helical gears which drive high speed spindles. In the later models (the prototype appeared in 1952) the hydraulic and other control equipment are all in the centre of the carriage; and, as most of the headstock is built into the carriage below the level of the spindles, the whole line of spindles is continuous.

In a new type of woollen spinning frame invented in the Textile Engineering Department of Leeds University, drafting and twisting can be done separately (in succession) or simultaneously. The heart of this frame is the "twistroller," a pair of rollers which rotate in the ordinary way for drafting and also at right angles for inserting twist. This idea was inspired no doubt, by Lewis Paul's first roller drafting patent specification of 1738 in which a pair of rollers "have another Rotation besides that which diminishes the Thread, yarn or worsted (viz.) that they give it a small degree of Twist betwixt each pair, by means of the Thread itself passing through the axis and centre of that Rotation." The idea has also recently been adapted by Messrs. Spinnbau in their "Perfect" woollen frame.

Wool Scouring and Combing

Some interest was aroused in Bradford by the announcement at the 1955 Australian Conference of a new solvent scouring process for raw wool. Many methods and solvents have been suggested since 1856, when Deiss proposed the use of carbon disulphide for degreasing wool; but Bradford for many sound reasons, has remained faithful to the soap/soda scour. In the new Australian method the solvent is white spirit. The improvements claimed are: reduction of fibre entanglement; improvement in strength and handle; almost complete recovery of wool grease (the process would indeed be uneconomic without); less trouble with effluents; and greater economy.

Final judgment must await trials in Bradford in which the new solvent scouring method can be compared under mill conditions with a soap/soda scour of Bradford standard. In the meantime investigations at Torridon have been showing that fibre breakage in worsted carding can be greatly reduced (and therefore comb tear improved) by improvements to the mechanical action of raw wool scouring designed to decrease fibre entanglement. Both the nature and the amount of fatty matter on the wool as it enters the worsted card have been found to have an important effect on fibre breakage in carding, and this subject too is receiving special attention at Torridon.

Recent new departures in worsted card design are exemplified by the new Platt narrow machine, which is 60 ins.

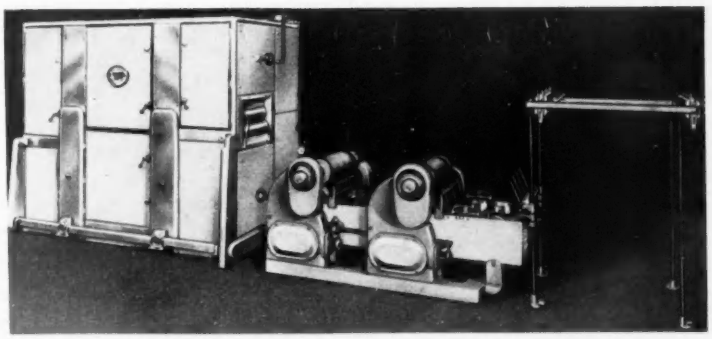


Fig. 4. General view of Taylor Wordsworth backwashing machine

wide on the wire, although narrower overall than the standard 54 ins. model. This increased production is made possible by a narrow driving belt; in addition, the drives themselves are simpler and the guarding is more efficient. Increased production too is a feature of the 71 ins. Thibeau card.

A recent innovation in drying technique is the introduction of the suction drum drying unit by Fleissner and Son. This type of drying unit is employed in the Fleissner backwasher and also in dryers for scoured wool. In this type of dryer, air is sucked from the outside to the interior of a perforated drum so that the wool holds firmly to the cylindrical surface and is rapidly dried with minimum disturbance, either in sheet or sliver form. A similar drying unit is featured by the new Taylor, Wordsworth Mark III backwasher, interesting features of which include large-capacity bowls, roller bearing-fitted squeeze rollers and hydraulic pressure applied to the rollers.

The Taylor, Wordsworth T. W. Mark V Noble comb is now being extensively used in Bradford: the main advantages claimed for this comb include a simplified drive, arrangements for easily changing the comb circles, and an electrically operated knock-off motion. The Australians (Commonwealth Scientific and Industrial Research Organisation) have incorporated an "Autoleveller" type of control in the Noble comb. A measuring roller at the coiler stage controls, by means of an electronic circuit, the height of the feed knives; so the process is controlled by the variability of the output sliver. There has been an increased use of the Raper "Autoleveller" on the 1st finisher gill box.

There are many other examples of automatic control such as electrical knock-off motions, end detectors, and pre-determined length counters on gill boxes. This section of the industry is also using the several testing instruments and methods devised for them by the Research Association: rapid oil content apparatus, fibre fineness meter, the new rapid regain tester and a nep counter.

Worsted Drawing and Spinning

The curve of progress plotted for Bradford open drawing and spinning machinery between 1785 and 1985 will have a very interesting shape when it can be completed. From about 1785, when Arkwright's machines and doubling and drafting methods began to be used, the curve rises gradually and smoothly until about 1945, when a shortage of labour led to an interest in the reduction of the number of stages in drawing. Then, in the mid-twentieth century, Raper and Ambler have come on to the scene. Whatever shape the curve finally takes we are obviously at a critical part of it.

There is no doubt that the five-year period since the 1953 Manchester Exhibition has been one of steady progress and consolidation for the Raper device in its now many forms. First came the Raper "Autoleveller" intersecting gill which, after thorough development and proving at Torridon and in mills, was used on gilling machines in drawing and in combing. The principle was then applied to the draw box in worsted drawing. This entailed the devising of a special means of drafting, the pressure drafter in which the fallers are replaced by a funnel, the fibres being controlled by the pressure of a plate. The system was next adapted to the drawing of long crossbred wool, and now we have the new Continental system, consisting of the "Speed-o-Gill" and bicoiler draw box.

By 1953 the Ambler "Superdraft" spinning device was getting well into its stride and the worsted spinning industry has been increasing its knowledge and experience of high draft spinning. This new knowledge is being added to the accumulation of sound traditional expertise: such niceties as the correct positioning of the flume according to the draft and mean fibre length are all-important, and skilled maintenance is assuming new importance. Trials at Leeds University in 1957, designed to compare yarns spun on A.S.D. and a conventional cap frame, yielded some interesting results. A 64s top was processed by Bradford open drawing to a 2-dram (actually 2·3) roving for ordinary cap spinning and a 40-dram roving for A.S.D. spinning. The spindle speed (6,800 r.p.m.) and the cap diameter ($1\frac{5}{8}$ ins.) were the same for each; but the respective drafts were 6 and 105. Tests showed that the A.S.D. yarn was more uniform (as measured on the Uster tester) and stronger (although it had slightly less twist). In addition, the fibre breakage was found to be considerably less in the A.S.D. than the conventional cap frame spinning.

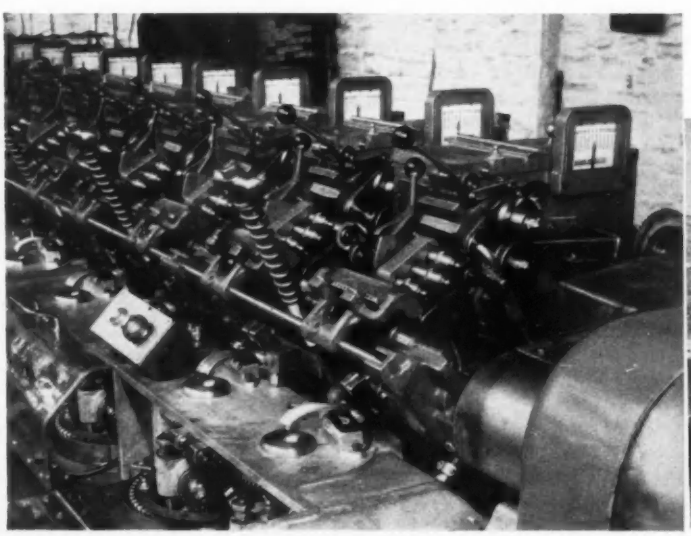
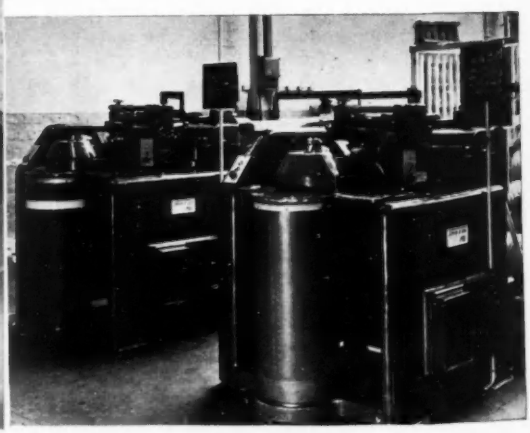
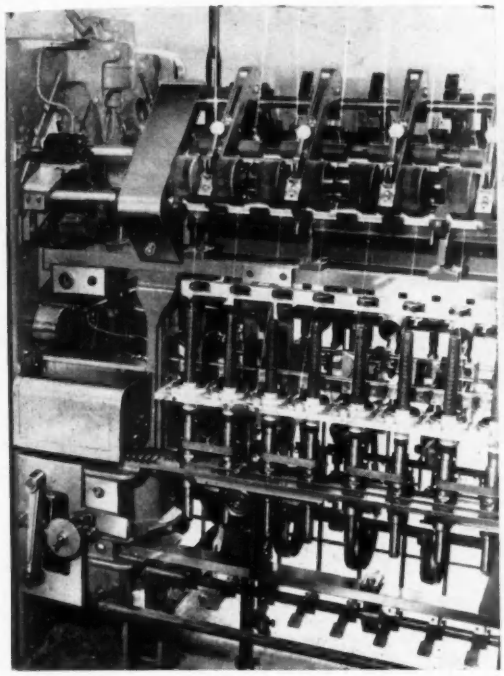


Fig. 5 (left) Drafting zone and coiler head of "Autoleveller" bicoiler drawbox, Model KRD2

Fig. 6 (below) "Speed-o-Gill" (courtesy, Prince-Smith and Stells Ltd.)





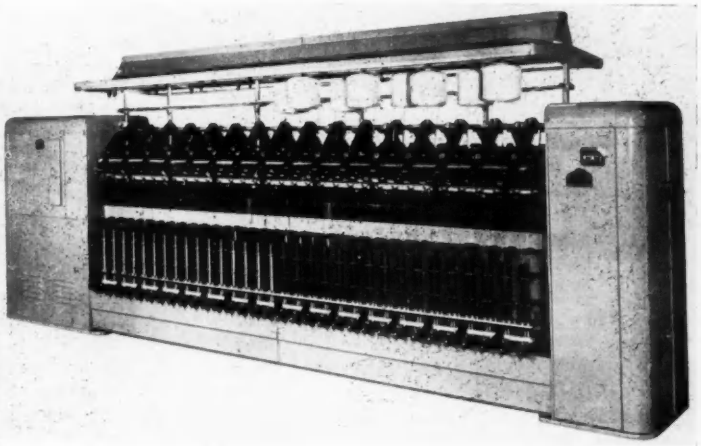


Fig. 7 (above) General view of "Magnaspin" ringframe

(courtesy, Prince-Smith and Stells Ltd.)

Fig. 8 (left) "Megaflex" KMFI ringframe

Both high draft and large package spinning are exemplified in the two models of the "Megaflex" ring spinning frame, KMF1 and KMF2. The KMF1 model has apron high draft (10 to 20) for twistless or lightly twisted rovings; the KMF2 has Ambler "Superdraft" (drafts up to 175) for oil-combed slubbing prepared on the ordinary Open Bradford or the Raper System. Another large package ring spinning frame, the "Magnaspin," was first shown in the prototype form at the International Textile Exhibition held at Brussels in 1955, and was put into production in 1957. This frame has a form of apron control, and a special feature is the control of the balloon enabling a large package to be spun.

Weaving

In spite of the advantages of fully automatic looms many woollen and worsted manufacturers have good reasons for preferring the flexibility of, for example, a 4 × 4 non-automatic loom. Conventional automatics can weave four colours of weft, but in general each must be woven with at least double picks; others give 2/2 weft mixing from two shuttles, or odd picks from three shuttles. Thus, in one way or another the range of styles that can be woven is usually restricted.

These considerations have lent popularity to the compromise of using a 4 × 4 loom that combines the advantages of automatic control. The boxes are arranged 4 × 4 offering all the weft patterns and pick-at-will facilities of an ordinary non-automatic 4 × 4 box loom: and yet there is an automatic detector device to stop the loom when a shuttle is nearly empty; the relevant shuttle is in a convenient position for changing—in the box that is at race board level. These semi-automatic facilities are now available on some types of new loom, and semi-automatic attachments have been developed for use with most existing types of 4 × 4 box loom.

Multi-colour and automatic looms of interest to the woollen and worsted industries are the Sulzer, Schwabe, Crompton-Knowles P.A.P.A. and the Italian Galileo loom. The principle of operation of the Sulzer, with its small gripper shuttles drawing weft from stationary cones, is well known, but only a few machines have as yet been installed in the U.K. It certainly received a great deal of attention from wool men at the 1955 Brussels Exhibition when it was seen weaving a pick-and-pick worsted cloth at 280 p.p.m. with an 85 ins. reed space. The new version of the Schwabe pick-and-pick automatic loom weaves four weft colours on automatic change with 4 × 4 or 5 × 5 boxes, picking at will. It has no superstructure. The Crompton-Knowles P.A.P.A. loom also weaves up to four colours on automatic change, but the boxes are arranged 4 × 3, which restricts the range of picking. An interesting feature of this loom is a combined suction and air jet system, and scissor-type cutters, for controlling trailing ends of weft.

Amongst the new looms there are some ingenious methods of picking, some of which are designed to reduce the strain on the warp by using a smaller shed, or to reduce abrasion by passing the weft through without touching the warp. The weft is blown across by air in the Kovo pneumatic loom, and even by water in the Svaty jet loom. Only very rarely, however, does a loom embody some completely new principle, such as the method of shedding and beating-up in the Italian Gentilini-Ripamonti loom, which was first exhibited at a trade exhibition in Italy (Sept. 1955). The warp threads after passing over a back rest and through a stationary reed, pass over a large rotating drum. On this drum there is a profiled cam for each warp thread so that as the drum rotates, the required warp threads are raised in accordance with the pattern. The weft is beaten up by a further set of projections on the drum. Two other looms, or "weaving machines," insert several picks simultaneously, and both appear to be inspired by knitting mechanism. The Cerdans Spanish machine can weave up to forty pieces simultaneously, twenty on each side. The "Cotron" weaving machine, invented by Mr. H. J. Cooper, consists

of a circular bowl; there is a combined heald and reed on the outside circumference and a combined picking and beating-up device on the inside circumference.

Progress in weaving depends not only on the development of new machinery but also on scientific examination of the weaving process. A programme of research at Torridon has been providing some useful information on the effects of varying tension in both warp and weft. Some means of measurement is a *sine qua non* for this kind of work, so methods have had to be devised for measuring the tension during weaving, both in the warp threads and—a more difficult problem—in the weft.

The W.I.R.A. reaching-in machine, now fairly well known to the industry, has recently been modified to take continuous filament yarns and now has a mechanically driven carriage. This machine is reliable, easy to maintain and of comparatively low cost. These advantages are also features of the W.I.R.A. dropper pinning machine now being produced by F.N.F. Machinery Manufacturing Co.

Dyeing and Finishing

Some examples were cited earlier in this article showing how closely fundamental knowledge may be related to practical results. Another example of this, also reported in the 6th annual report (1958) of the Wool Textile Research Council, is the finding (at the Royal College of Science and Technology, Glasgow) that wool dyes tend to have better light fastness when the arrangement of the atoms in the dye molecule is symmetrical. Although wool is a relatively easy fibre to dye research continues with the object of discovering more effective methods of dyeing which can be carried out with minimum damage to the fibre. Temperatures of well over 100°C. are sometimes used in dyeing, and the wool fibre stands up to this well provided that the solution is not too alkaline. But there is always a danger that such processes may have a harmful effect on the good natural properties of wool. Investigations at Leeds University have shown, however, that very much lower temperatures can be used if certain organic solvents are added to the dye solution. The method, whose commercial value has not yet been established, could also enable wool to be dyed with coloured pigments that are not soluble in water.

Melange printing, originally patented by Vigoureux in 1863, has become very popular during the last few years. This technique of printing a wide sheet of sliver with diagonal or transverse stripes of colour achieves a uniformity of shade in worsted yarn that cannot be obtained by mixing dyed and undyed fibres. Sometimes an undesirable mottle effect is obtained and investigations at Torridon have shown that this is more pronounced when the melanging is such that the print on individual fibres is too clearly defined. The investigations have also shown that in a blend care should be taken that fibres do not vary much in fineness. For example, a mottled effect appeared in a cloth made from 56s wool melanged in top form and blended with "Terylene" staple equivalent to about 70s wool: the wool fibres "grinned" through and predominated in colour effect over the "Terylene."

The blending of "Terylene" and other man-made fibres with wool has brought many problems which have been successfully solved by the dyer, dyestuff manufacturer and research worker. Dyes suitable for wool were not so for "Terylene," which required disperse dyes—and these are not suitable for wool. The fibres are therefore often dyed separately; but suitable dyes for treating both fibres together have been found, an after-treatment being used to remove loose colour from the wool. The same dyes could be used for "Acrilan" and wool, but as "Acrilan" accepts the dye more slowly than wool the boiling time had to be longer than was necessary for the wool. This difficulty has been solved by adding chemicals to slow down the uptake of dye by the wool in the early stage of dyeing.

Wool Industry's Future

Who would dare to dogmatise on such a subject? But one can observe certain trends; and as Oliver Wendell Holmes remarked, the important thing is not so much where we stand as in what direction we are moving. Taking the broad view, it is a fact that world consumption of apparel fibres is increasing. The British wool industry's share in supplying this demand will depend upon economic conditions and upon its own efficiency in production and marketing. This article is concerned only with production.

Although wool may never lend itself to complete automation of manufacture, there is evidence that the industry, at every stage of processing, is making greater use of mechanisation,

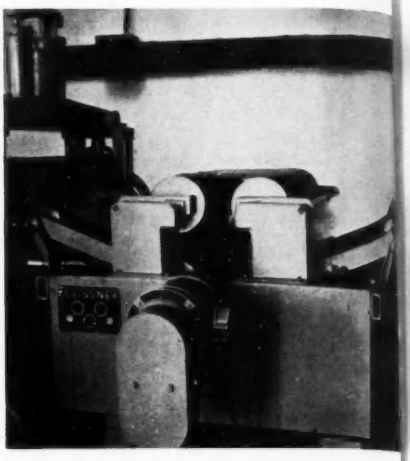


Fig. 9 Fleissner machine for dyeing loose fibre.

testing, measurement, quality control and other advantages deriving from its own experience and from scientific research. The conveyor belt system is being adapted to shearing, the sheep being held in cradles on a circular table. The W.I.R.A. "Autocount" is an example of automatic process control. The Raper and Ambler devices, both conceived by men in the industry, are the offspring of experience and research. During the last few years there have been innumerable advances in weaving, dyeing and finishing, and proofing. There are many straws from which the direction of the wind may be judged. For instance, the industry's increasing awareness of the value of quantitive estimates is exemplified by a rising demand for the nomograms produced at Torridon for simplifying routine calculations.

The Work Study Centre, established by the Wool (and Allied) Textile Employers' Council in 1954, has gained the confidence of the industry; this is indicated by the industry's increasing use of the centre as a consultative service.

Above all, the industry appreciates the value that is being obtained from its Research Association. The wool textile research levy, which provides Torridon's main source of income, has been increased (April 1958) at the instigation of the Wool Textile Delegation, acting on behalf of the industry.

If a single augury for the future is sought, it may be found in the 1958 Brussels Exhibition where buyers from Europe and America were well impressed by the 10,000 cloth samples on view; the British wool textiles exhibit was awarded the Supreme Grand Prix.

Man-Made Fibres: Major Recent Developments

Fibre synthesists are paying more and more attention to kindliness of fibre, soft handle, good drape, high moisture regain and good dyeing affinity. For industry, high tenacity, durability, and chemical and biological immunity to attack are available in several fibres

By R. W. MONCRIEFF, B.SC., F.R.I.C., F.T.I.

THE last few years have seen some important developments in the world of man-made fibres. The best of the established fibres, nylon particularly, have advanced and established themselves more firmly than ever. Nylon, indeed, first as it was of the synthetic fibres is still, 20 years later, their unrivalled leader, made in far greater quantity and used for far more purposes than any other—the best all-round man-made fibre. Terylene, Acrilan, Orlon, dynel and the like have made a great deal of progress and are being more and more widely used.

The new fibres that have appeared have been mostly in the acrylics group, Courtelle, Creslan, Darlan, Verel and Zefran, but outside this group there have appeared cellulose triacetate, Courpleta and Tricel, as well as Teflon. On the horizon are the polypropylenes and other isotactic polymers. Altogether it has been a period of consolidation and considerable progress.

Cellulosic Rayons

The outstanding event in this group has been the development and marketing of the triacetate fibres. Their prime virtue is that they include in a cellulosic fibre the capability of being heat-set, a property which has proved to be one of the most attractive of those of the synthetics. Additionally, triacetate has a considerably higher melting point then ordinary acetate and shows a marked advantage in safe ironing temperature. Cheapness, too, is a virtue, the price of Tricel staple in August, 1958, being 54d. per lb., compared with viscose staple at 24d. (crimped 27d.), and nylon staple (3 den.) at 117d. Triacetate, therefore, occupies an intermediate position and when its price is

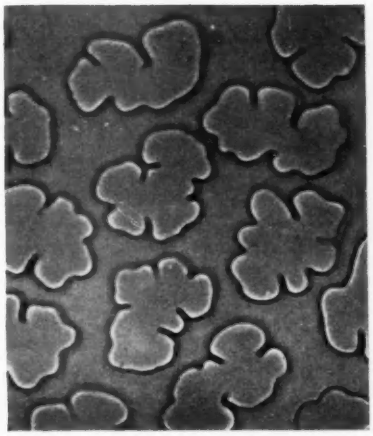


Fig. 1. Cross section of cellulose triacetate filaments (X750) (courtesy, Courtaulds Ltd.)

compared with those of other cellulosic fibres it looks as though it could afford to drop a long way. A cross-sectional view of triacetate is shown in Fig. 1. Properties that are not altogether desirable are a stiffness of handle (although this is useful in taffetas), the relatively low strength typical of the cellulosics, and the low moisture absorption typical of the synthetics. Half-way between the cellulosic fibres and the synthetics it shares the bad as well as the good of each. Most important of all it lacks the lovely handle and draping qualities, which, under the guidance of the late Henry Dreyfus, first established ordinary cellulose acetate as a beautiful fibre. The future of cellulose triacetate cannot be regarded with unlimited enthusiasm.

High tenacity viscose rayon for tyre yarns has got stronger and more super (Super Cordura, Super Narco, Super Tenax, Superbreda, Superenka) than ever, but it is apparently fighting a losing battle against nylon, which gives greater strength and longer wear to tyres. Tyres, today, give better wear than they did 20 years ago (the original set on my own car after 34,000 miles are still quite good) and the improvement is largely due to the inclusion of high tenacity yarns in their fabrication.

Chemical crimp produced by spinning fibres that have a thicker skin at one side than the other so that the fibre swells unevenly and cockles or crimps when wetted, has come to stay.

Chemically modified cotton fibres represented mainly by acetylated and cyanoethylated fibres have attracted a good deal of work. Their main advantage is one of increased resistance to microbial attack; some improvement in heat resistance and in dye affinity have also been claimed, but one must be realistic, and untreated cotton is perfectly all right in these respects. It might well be thought that there is a bright future for cotton fibres that are given a light surface acetylation, or possibly cyanoethylation, to give much needed protection against mildew and bacteria and thereby to make possible their use in hot and humid countries.

Fibrous Acetylation. Ordinarily, when cellulose is acetylated, the cotton or wood pulp dissolves in the reaction mixture, but ways have been discovered whereby cotton and viscose rayon can be acetylated with retention of fibre form. In Japan the Toho Rayon Co. Ltd., are acetylating viscose staple fibre on a commercial scale without loss of fibre form. The advantage is presumably that of spinning from an aqueous solution; water is cheaper than acetone. No fibre is so cheap to produce as viscose staple and its batch acetylation offers a new and economically attractive

approach to cellulose acetate—one which has great promise. The acetylation of jute may perhaps become of significance and a paper that has come from the Indian Jute Mills Research Institute,[1] Calcutta, shows that the subject is attracting serious attention.

Two new fibres, both cross-linked cellulosic fibres, are being introduced by Courtaulds' American company. One of them, Corval is available in small quantities at 40 cents/lb. and is intended for blending with synthetic fibres. The other one, Topel, is characterised by low extensibility and good alkali resistance; it costs 34 cents/lb. and is apparently intended for blending with cotton. Both fibres are said to have good handle and drape, and their advent will arouse considerable interest.

Nylon

Still the best, still made in much greater quantity than any other synthetic fibre, nylon remains a tribute to the memory of Carothers. Du Pont in America had the lead, but Chemstrand seem to be catching them up. How have they done it? By attention to yarn quality, by making good packages. For a long time Du Pont had a complete monopoly in the production of this fibre but Chemstrand later commenced to make and sell nylon with meticulous detail paid to textile processing and quality; grateful consumers bought it eagerly and Chemstrand's nylon productionhas been forecast at 114 million lb. for 1958. This excellent result has been accompanied by an all-round improvement in textile quality. Early in August, 1958[2] reports appeared in the press that British Nylon Spinners were contemplating the erection of a new factory at Havant, Hants, so the demand for the fibre must be increasing. Fig. 2 shows B.N.S. nylon in use as a tow rope between a Thames tug and a barge.

Most striking of the many new uses for nylon has been the advance of stretch nylon. Helanca was the first form and it has been followed by Agilon, Ban-Lon, and Fluflon. All the stretch nylons have been treated by the insertion of twist and/or application of heat in such a way that they can be stretched to several times their length and will return like rubber to their original length when the tension is released. Garments made from the stretch nylons often look absurdly small but they stretch adequately and fit snugly; socks need to be made in only two instead of many sizes, large and small, to accommodate feet of all shapes and sizes. Stretch nylon tights, sold at about two guineas, probably fit tighter than any before. Stretch yarns are important in that they overcome in nylon, and later they will do so in other fibres, the disinclination of garments made from such a rigid fibre to accommodate themselves to the contours of the body; in fact, stretch nylon fits more snugly than ever wool did, and a stretch Terylene, known as Fluflene, is also available.

Nylon owes its supremacy amongst the synthetics to its reasonably high moisture regain; at 4% this is exceeded amongst the synthetics only by the Japanese Vinylon and perhaps equalled by Verel. We must expect that from the research constantly carried out by the fibre manufacturers, other fibres with higher regains will come. Life as we know it is impossible without moisture and to be compatible with living organisms, apparel fibres must have a reasonable compatibility with water.

Rilsan. Although a high regain is eminently desirable in apparel fibres, there are many industrial uses for which a low regain is advantageous, notably in electrical appliances. Nylon 11 or Rilsan is made by the polymerisation of ω-aminoundecanoic acid, whereas nylon 6 or Perlon is made by polymerising ω-aminocaproic acid. According to Dumon[3] "Rilsan, with its relatively long paraffin chain and low content of polar groups, has properties intermediate between those of polyethylene and nylon. In particular, the electrical properties of Rilsan are less affected by relative humidity than are those of the other polyamides; thus the moisture absorption of Rilsan has been found not to exceed 2%." Low moisture regain, deriving from the paucity of polar groups, is advantageous here; it often is for industrial uses, but not for apparel.

Terylene

Terylene continues to advance. More than eight million Terylene/wool skirts have been made; more than 40% of the sports trousers made today in the U.K. contain Terylene. Curtain net, too, has provided another big outlet, mainly because of the fibre's good resistance to sunlight. A newer development has been the success of blends of Terylene with cotton, usually 2/3 Terylene, 1/3 Egyptian cotton; the cotton gives an opacity which is desirable in shirtings and blouse poplins; it also gives to the fabric greater moisture absorbency and improves its handle. The ubiquitous Terylene/wool skirts are a tribute to the dimensional stability of the fibre—its most precious asset in the maker's view—and to the easy care that results therefrom; the skirt looks like new after a night's rest. Even so, such skirts, do not look nearly so graceful when worn as does a woollen skirt; they do not drape so well, and one wonders how long it will take women to realise it.

Terylene is already made in Canada under the same name, in America, of course, as Dacron, in Germany as Diolen and Trevira, in Italy as Terital, in France as Tergal, and in Holland as Terlanka. The Japanese (Teikoku Rayon Co. Ltd. and Toyo Rayon Co. Ltd.) are ready to produce it as Tetoron. According to the Japan

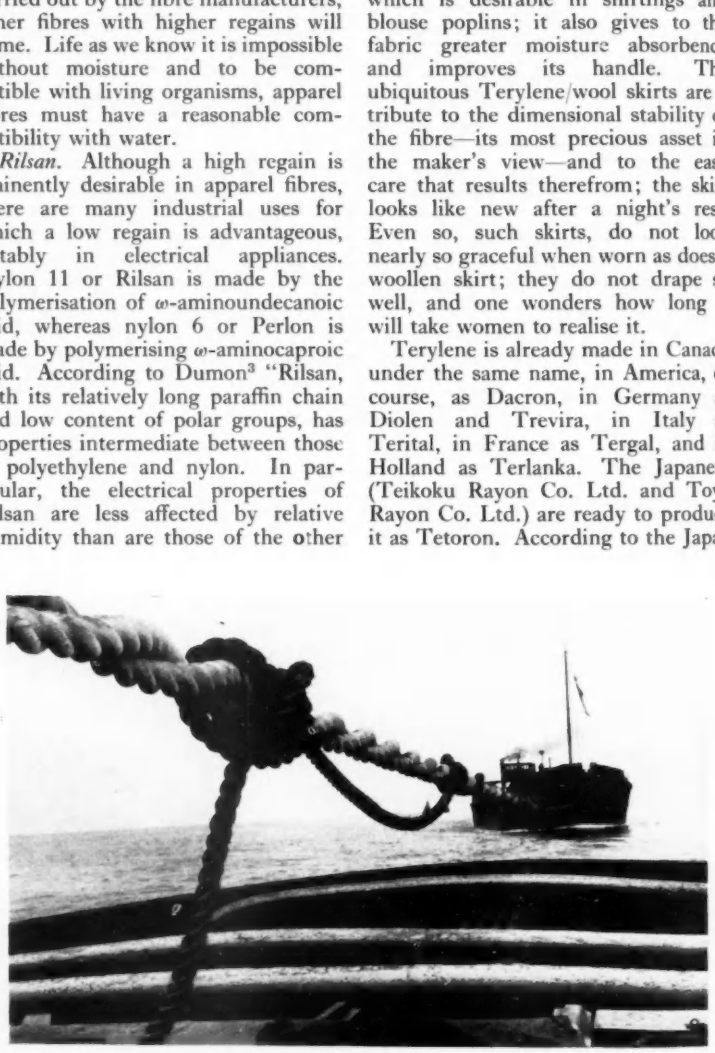


Fig. 2. Nylon's elasticity and strength allow the size and weight of tow-ropes to be greatly reduced (courtesy, British Nylon Spinners Ltd.)

Chemical Fibres Association (Rayon and Synthetic Fibres of Japan 1958) "it will not be long before Japan will be offering this excellent fibre to overseas markets in apparel fabrics and for industrial uses." It is understood, too, that the Russians are negotiating with I.C.I. Ltd., for the design and technical information necessary to start production in U.S.S.R. and that they are prepared to pay millions of pounds for the necessary technical help.

Terylene has presented many problems to the tailors, who have traditionally been used to worsted fabrics. These problems appear, in the main, to have been overcome[4] but the tailor has had to adjust his technique to the new fibre. Still, today there are some traditional tailors who prefer to keep to worsted and still there are many men who prefer a good worsted suit. Terylene brings the advantages of durability and easy care, but for beauty and comfort there are many who would say that there is still nothing like wool. From the commercial standpoint there is competition between nylon and Terylene, with the prospect of intense competition from the acrylic fibres which are inherently cheaper and are coming along very nicely. It is the author's view that nylon has less to fear from them than has Terylene, but probably the market and uses for such fibres will expand, so that all will find good outlets.

The Acrylics

Courtelle, the first of the British acrylics is on the market, but is not yet easy to buy. Dresses at about 15 guineas were recently advertised in the *Observer*, but an attempt to buy one met with a promise to try to procure it in six or eight weeks—nothing from stock. In respect of tenacity and extensibility Courtelle seems to be a little in front of Acrilan, as the following figures indicate:—

	Tenacity grams/denier	Elongation at break %
Courtelle ..	**3.3 — 3.6**	**40 — 45**
Acrilan ..	**2**	**36**

In respect of dyeing affinity it seems likely that Acrilan still has the highest of any of the acrylics. Some years ago the production of a fibre with a strength above 3 grams/denier and an extensibility of 40% would have aroused admiration, but since the advent of the immensely strong nylon and Terylene continuous filament yarns we have come to realise that strength and durability can be overrated and that in themselves they are not sufficient to give a good apparel fibre. Everybody in the U.K. will wish Courtelle, the first of our acrylics, well, and there can be no doubt that the fibre will be a very good one.

Darlan made by the B.F. Goodrich Chemical Co. is a co-polymer of vinylidene dinitrile and a vinyl ester. Its tenacity and elongation (1·75 grams/denier and 30%) are more like those of rayon; great strength has been sacrificed for handle, which is very soft, for drape and for those qualities that make a good apparel fibre. The manufacturers say that their fibre

Fig. 3. Cross section of "Darlan" filaments (X140) (courtesy, B.F. Goodrich Chemical Co.)

"combines the aesthetic qualities of natural fibres with (the) ease of care which is typical of the synthetics." The cross-section of the fibre, as can be seen from Fig. 3, is rather flat and a little reminiscent of that of dynel. The market which is first being explored is that of luxury wearing apparel. It is probably true to say that the appearance of Darlan represents a milestone in the development of synthetic fibres, one at which attention is first directed to beauty rather than to utility.

Creslan, made by American Cyanamid Co. replaces their old X-51; the same fibre is to be made under licence in Japan by the Japan Exlan Ltd. Compared with X-51, Creslan has mechanical properties that are not quite so good and it seems that it has been designed primarily for easy dyeing and good handle.

Verel is a modified acrylic fibre, probably containing a fair proportion of vinyl chloride as a monomer; it is made by Eastman Chemical Products Inc. Its moisture regain is notably high for an acrylic at 3·5-4·0, very similar to that of nylon. The fibre is easy to dye, has a soft handle, and is non-flam. This last is important and might make Verel very useful for kiddies' party frocks and nightclothes. It is not very good for ironing and damage occurs at temperatures above 150°C. but it can safely be pressed at the low settings on the iron.

Zefran, made by the Dow Chemical Co. has been described as a "nitrile alloy" and as "a graft co-polymer of dye-receptive groups on a backbone of heat-resistant polyacrylonitrile."

Acrilan. An important development which should not be overlooked in the acrylics is the use of Acrilan for carpets; possibly they soil rather more easily than wool, but in many respects they are excellent.

Orlon is no longer made in the high tenacity continuous filament form but only as staple and tow. Today's Orlon, like Acrilan, Creslan, Courtelle and the rest, is a co-polymer with acrylonitrile, as the major monomer, but the first Orlon C.F. is believed to have been a pure polyacrylonitrile and how superb were its weathering and resistance qualities; its discontinuance is to be regretted.

Dynel the co-polymer of acrylonitrile and vinyl chloride continues to flourish in the staple form. Its continuous filament analogue Vinyon N has been discontinued. These changes, the progress made by Orlon staple and dynel and the dropping of chemically similar fibres in the continuous form, have a deep significance. They indicate that the consumer prefers wool-like properties (staple form and softness) to the newer properties of very high tenacity and durability that have characterized most of the synthetics in fibre form. In the future we can look to the acrylics approaching wool properties more and more closely; inevitably this means the inclusion of more polar groups in their structure—indeed a diminution of their acrylic nature—reduced strength and durability, higher moisture regain and so on.

Vinylon. The Japanese polyvinyl alcohol fibre, Vinylon, is made by five manufacturers and in 1957 their combined production was over 32 million lbs., an increase of about 40% over the previous year. Vinylon fishing nets of various types are widely used and are low-priced. Fig. 4 shows Vinylon fishing nets being used to catch tuna. Lately, too, the fibre has

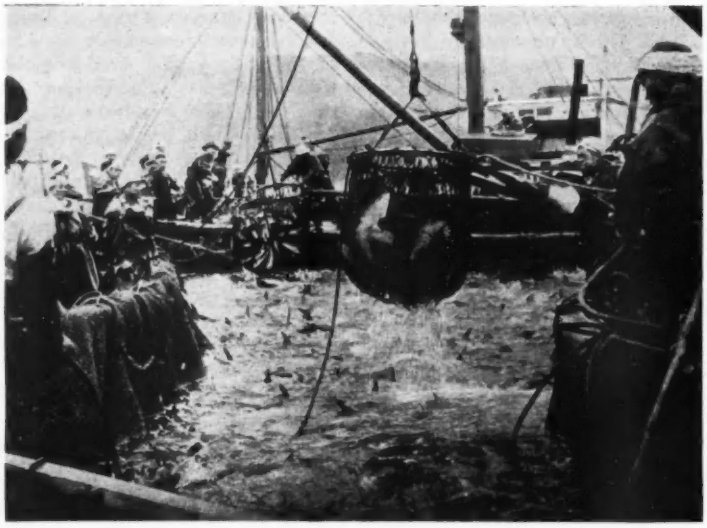


Fig. 4. Vinylon fishing nets used to catch tuna (courtesy, Kurashiki Rayon Co. Ltd.)

found considerable use in the rubber industry because of its excellent adhesive qualities. The outstanding characteristics of this fibre are its relatively high moisture regain (5%), its good spinnability and its low price.

Polyethylene

The outstanding development in polyethylene manufacture has been the introduction of low pressure processes. These have given a product with a much higher melting point e.g., low pressure Courlene X3 has a m.p. of 135°C. compared with 110°C. for the original Courlene, whilst its tenacity is also much higher at 4 grams/denier. The low pressure (Ziegler) process depends on the use of special catalysts which give a more highly crystalline molecular arrangement, with better packing, higher density, higher strength and higher melting point.

Teflon

Teflon, made by Du Pont, probably represents the ultimate in resistance to chemical and biological attack. It is pure polytetrafluoroethylene and the molecule consists of a carbon chain unassailably protected by a bristling cover of fluorine atoms. It is of no interest as a general textile for apparel, but for some industrial uses, where contact with corrosive chemicals is inevitable, it is superb. The fibre is dear, about £5 per lb., but it will do things that no other fibre will. As a braided packing for a chemical pump handling 102% nitric acid it was still in good condition after seven months, whereas the best previous packing had lasted only three weeks.

Polypropylene and Polystyrene

These two fibres are the two newest comers; they have been developed from the Italian Natta's work on extremely highly crystalline isotactic polymers, which result from the use of special catalysts. When it is remembered that propylene is made as a by-product in enormous quantities in oil refineries and is currently available at about 4 cents per lb., the possibilities of synthesizing fibres at unheard of low prices is evident. At the same time, the propylene made today is not pure enough[5] for polymerisation into a good fibre, and the necessary purification may prove to be costly for some time yet. Styrene is much dearer at 20·5 cents per lb. (for comparison acrylonitrile is 27 cents). Isotactic polypropylene[6] softens at 158-170°C., its density is low at 0·92 so that it floats on water, it has a tenacity of more than 9 grams/denier, and an extensibility of 30%. It is soluble in toluene but not in ether or *n*-heptane. Polystyrene has a density of 1·08 and a softening temperature of about 230°C. Both fibres are prone to static and difficult to dye, but it is said that the graft polymerisation of polymethyl methacrylate with the propylene improves the hydrophilic, and thereby the dyeing, properties of the final polymer. Polypropylene may rival polyethylene but it is impossible to see it used, with its low softening point, as a general fibre. The 1957 production of polypropylene has been estimated at 0·3 million lbs. Isotactic polymers have, as a result of their close molecular packing, high density, high tenacity, and higher softening points than random polymers.

Regenerated Proteins

It is regrettable that within the last year two of the most promising of the regenerated fibres have been discontinued. Ardil made at Dumfries by I.C.I. Ltd., from peanut protein, and Vicara made by the Virginia-Carolina Chemical Co. from maize, both seemed to be well established and to be being used for a big variety of purposes. Both fibres had some very good features; the handle of Ardil was the warmest and softest and the closest to wool that has been produced on a man-made fibre; the wet strength and the alkali-resistance of Vicara were outstandingly good and represented a real victory over the old bogey of poor washability of the regenerated protein fibres.

On the other hand, Courtaulds' Fibrolane BX and Fibrolane BC, both made from milk casein are progressing. Fibrolane BC represents a considerable advance over the earlier Fibrolanes. Those restrictions and special conditions that have had to be observed in the dyeing of Fibrolane BX do not apply to Fibrolane BC. Like Fibrolane BX it is made by dispersion of the casein, extrusion, stretching and hardening, but additionally the fibre is chrome tanned and this gives it exceptional stability so that it can be safely dyed by processes that result in fast colours and so that it can be laundered safely. The improved stability of Fibrolane BC is due to the chromium cross-linkages, which exercise somewhat the same function as the cystine linkages in wool; unfortunately the chromium colours the fibre a light-blue-green shade.

That Ardil and Vicare have gone whereas Fibrolane and Merinova (an Italian casein fibre), survive suggests that a trend in fibre manufacture may be being reversed. A few years ago synthetic fibres at least were passing from the control of the traditional fibre spinner to the chemical manufacturer. Firms such as Du Pont, I.C.I. and Chemstrand, which had no great textile background, showed themselves able to make very good fibres—marvellously strong and excelling in characteristics such as this, anything there had been before. But with the regenerated proteins the fibre spinners seem to have done better than the chemical manufacturers, and perhaps it will be the

spinners who will develop successfully the wool-like synthetic polypeptides which must come sometime.

Pilling

The formation during wear of pills of fibre on a garment is a serious problem in the application of synthetic yarns. The problem is not new because knitted garments made from worsted yarn have long been subject to it. But the incidence of pilling rises when synthetic fibres are mixed with wool. Nylon/wool socks are liable to pill during wear, and an Acrilan two-piece set that the author observed during wear, developed a lot of loose fibre on the surface. According to Baird, Hatfield & Morris,[7] the pilling of nylon/wool fabrics can be reduced by:—

(1) Increasing the yarn twist.

(2) Using doubled yarns instead of equivalent single yarns.

(3) Making the fabric with a firm tight structure, e.g., increasing the number of threads per inch.

Terylene/wool fabrics, too, are prone to it; some experimental work by Nilson, Onions and Whewell[8] has shown that the formation of pills reaches a maximum at one particular stage of wear and thereafter the pills wear off and are not replaced. With all-wool fabric this stage is reached fairly early, but with all-Terylene it is reached much later and with wool/Terylene blends intermediately. The method of testing that was used was to rub the fabric against a standard tie-lining on a Martindale tester.

According to Mims,[9] the method of test for pilling used by I.C.I. Ltd., is to mount the samples on flexible rubber tubes and to tumble them for say five hours in a cork-lined box. This gives a fair assessment of the liability to pilling of many fabrics such as Terylene/wool blends in fabrics for skirts, men's trousers and women's and men's suits, but it is not universally applicable.

The problem of pilling, which is essentially due to breakage of fibres by abrasion during wear, is not yet solved. It might be possible to mitigate the trouble, as was once proposed by the author[10] for wool fabrics, by a light application of a suitable resin, but the ultimate solution must be in modification of the physical characteristics of the fibres. We can be sure that work to this end is being intensively carried out. It has been reported that Courtelle/wool and Courtelle/Fibro blends are free from pilling and if this is so it is a big step forward.

Laundering

The Report of Sir Hugh Beaver's Committee on Air Pollution was presented to Parliament in 1954, and was followed by the Clean Air Act of 1956. According to the report the weekly wash of the average family in industrial areas weighs 17 lbs., costs 2/5d. and takes nearly eight hours, whereas in rural areas it weighs 13 lbs., costs 1/10d. and takes nearly seven hours, both times including ironing. The extent of soiling in a Leeds curtain is about seven and a half times and in Manchester about four times what it is in rural areas. Laundries are expensive. The man-made fibres have done little, if anything, to mitigate the drain on the housewife's time or pocket; true, the rayons are easy enough to wash but no easier than cotton, and some care has to be exercised in ironing them; cellulose acetate will fuse if the iron is too hot. The triacetate is much better in this respect and represents a distinct advance.

Both cellulose acetate and the triacetate as well as the synthetics will readily develop electrostatic charges and attract to themselves particles of soil from the surrounding air. This can lead to fog-marking of warps and this in turn can be corrected by various devices. One interesting device is the use of radioisotopes for this purpose, the beta particles that they throw off will ionise the surrounding air and permit the static charges to leak away; both thallium 204 and strontium 90 have been used for this purpose[11].

Drip-dry finishes on cotton and rayon have provided a partial solution to the laundering problem, but the finish that shirts and blouses show after washing and drip-drying is not usually very attractive and a light ironing will improve matters a lot. The author dissatisfied with the drip-dry finish on a shirt, sent it to a laundry; it came back shrunk round the neckband so that it was unwearable; reference to the makers (who pulled it back into shape) elicited the information that "non-iron shirts should not be sent to the laundry." Drip-dry finishes represent an attempt to confer on cotton and the rayons one of the most esteemed of the properties of the synthetic fibres; probably the combination will be difficult to bring to perfection.

Utilization of Thermal Properties

Traditionally, the best thermal property of all is immunity to the action of a hot iron. Some of the synthetic fibres, notably nylon, Terylene and the acrylics, are reasonably good in this respect, others are extraordinarily poor. Polyethylene and polyvinyl chloride fibres melt at temperatures so low that they are useless for applications which will involve ironing; nevertheless a virtue has been made of this defect by using the thermal plasticity to develop fancy yarns and fabrics. The method used has been outlined by Seidler & Young.[12] In principle it is to double a thermoplastic yarn, such as Courlene X3,

(*continued on page 16*)

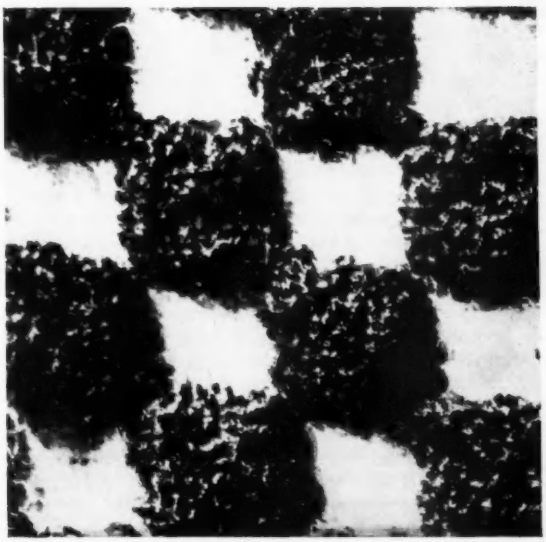


Fig. 5. Check velvet made from Fibravyl and wool, illustrating the fancy effects obtained by utilising the shrinkability of P.V.C. fibre (courtesy, Societe Rhovyl)

Factors Affecting the British Cotton Industry in the 1950's

If imports for home consumption remain at about the level reached in 1957 *and the first half of* 1958, *and if home consumption is not reduced by a general recession in the economy, production in* 1959 *might total about* 2,250 *million sq. yds., ignoring any stock movements and allowing for a further possible fall in exports*

By D. C. SHAW, M.A.*

IN the debate in the House of Commons on June 30, 1958 Sir David Eccles admitted that cotton was the gravest problem the Government had in the private section of the economy. Most of those engaged in the industry would ruefully acknowledge the truth of this. The industry's difficulties can be illustrated most graphically by recalling that in 1951 it produced 1,077 million lbs. of yarn and about 3,070 million sq. yds. of cloth with a labour force at its peak of 370,000. In June 1958 output was equivalent to an annual rate of 769 million lbs. of yarn and about 2,100 million sq. yds. of cloth, and the number employed in the industry was only 265,000. (Throughout this article the term "cotton industry" and the statistics relate, unless otherwise stated, to the spinning of both cotton and man-made staple yarns on the cotton system and to the weaving and finishing of fabrics of both cotton and man-made fibres.)

What went wrong? In the first place it should be recognised that 1951 is a wholly abnormal year with which to make a comparison. In that year the market was grossly oversupplied so that stocks in the pipeline mounted at a fantastic rate; it obviously could not last. The choice of a base period for comparisons of movements in supply and demand must be a matter of opinion; in what follows the average of the years 1950 to 1953 has been chosen to represent "normality." Before 1950 U.K. exports had not felt the full force of Japanese and Indian competition in overseas markets; on the other hand it was not until after 1953 that imports of duty-free Commonwealth cloth into the U.K. became a serious problem. Moreover, stock changes over this four-year period were probably not sufficiently great to distort the picture materially. Table 1 shows in summary the trends in the industry since 1950-53.

Because of stock movements of uncertain magnitude it is impossible to say with any degree of precision what the actual level of home market consumption is at present, but the increase in comparison with the 1950-53 period must be roughly of the order of 150 million sq. yds. The whole of this increase and more has been swallowed up by imports. The industry has had to suffer the loss of about 425 million sq. yds. of exports, while its sales to the home market, far from expanding as might have been expected, have actually contracted. Competition from Asiatic countries accounts for a very large proportion of the export losses, as will be seen later, as well as for most of the difficulties in the home market.

Table 1

Estimated Supply and Distribution of Fabrics of Cotton and Man-Made Fibres in the U.K.
(Million square yards

		Average 1950-53	1954	1955	1956	1957	Annual rate 1st half 1958
1.	Production	2,775	2,875	2,570	2,395	2,370	2,195
2.	Imports: total* ..	305	350	395	430	540	515
3.	of which, for home consumption (est.)	145	180	230	265	335	340
4.	Exports of piece goods: total ..	965	810	690	595	565	515
5.	of which, cloth woven abroad (est.)	170	110	170	145	145	145
	Balance available at home (1 + 2 — 4)	2,115	2,415	2,275	2,230	2,345	2,195

* Including the estimated cloth equivalent of made-up cotton articles.

The home market, which now takes about three-quarters of total U.K. production, is obviously of crucial importance to the industry. Roughly 45% of the yardage of woven fabrics of cotton and man-made fibres consumed at home is in the form of clothing. Official estimates show that, after the setback in 1951 and 1952, consumers' expenditure on clothing, corrected for price changes, increased steadily and quite rapidly until 1957 but has suffered a slight decline this year. The current level is about 16% greater than the 1950-53 average and about 11% greater than the estimate for 1938. (The population increased between 1938 and 1958 by about 9%.) Of course clothing uses the products of other industries besides the cotton industry, the most important being the wool and hosiery industries, so that expenditure on clothing is a very imperfect indicator of the trend in consumption of woven cotton and man-made fibre apparel fabrics. In particular, there has been a long-term tendency for knitted fabrics to expand at the expense of woven fabrics. Moreover, the increase in expenditure corrected for price changes reflects changes in quality as well as quantity, and in particular the expansion in the use of the relatively expensive synthetic fibres. Hence the percentage increase in the *yardage* consumed has probably not been as great as the figures of expenditure on clothing seem to imply.

In 1957 about 8·1% of total personal expenditure was accounted for by clothing (excluding footwear), compared with about 8·7% in 1950-53 and 8·5% in 1938. The decline since the early '50's can be explained partly by the fact that clothing is now cheaper relative to other goods and services, partly by the fact that in a country with the

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U.K.'s standard of living a disproportionate share of any increase in real income tends to be spent on less essential items than clothing. Expenditure patterns can alter for other reasons than price and income movements, of course, and promotional efforts can help to induce such changes. The man-made fibre producers have spent considerable sums on advertising for many years, while in the last year or two the cotton section of the industry has financed a promotion campaign on top of the efforts which individual firms have always made. Quite apart from any competitive gains and losses between fibres this expenditure on promotion should help to increase the overall consumption of textiles.

Duty-Free Imports

An increase in home consumption is of little use to Lancashire in itself, however, if, as happened between 1950-53 and 1958, retained imports expand by an even greater amount. Duty-free imports of cotton goods from the Commonwealth are, of course, the main bugbear. Imports of cotton piece goods for home consumption from India and Hong Kong increased from an annual average of about 37 million sq. yds. in 1950-53 to an annual rate of about 183 million in the first half of 1958. Over the same period the cloth equivalent of made-up cotton goods imported from the same countries increased from about 7 million sq. yds. to approximately 53 million sq. yds.

At the time of writing no solution to this problem had been found, although inter-industry negotiations were still proceeding. There is little that can be added to the arguments presented on countless occasions by the accredited spokesmen of the industry in favour of some limitation being placed on this duty-free, low-wage competition from Asia. The U.K. is practically the only cotton textile producing country to allow duty-free entry of cotton goods from *any* source. (Hong Kong—a very special case—is virtually the only exception.) Moreover, where imports from Asia are concerned many Western countries take additional steps to protect their textile industries, either by quotas or by encouraging voluntary restrictions in the exporting country. That the British government recognises that even a 17½% duty may not be sufficient protection against low-wage competition from Asia is proved by the quota restrictions which it has imposed on imports from Japan and China, for which Lancashire is truly grateful. Curiously enough, these restrictions are as much a help to India, Pakistan and Hong Kong as they are to Lancashire, for imports from the Commonwealth would certainly decline, perhaps drastically, if there were not such stringent restrictions on imports from Japan and China. On the other side of the coin, U.K. cottons are virtually excluded from India and Pakistan by high tariffs and/or quotas. What is equally irksome to the cotton industry is the fact that it is one of the very few without protection. Some industries, e.g. rayon, motor cars, motor cycles, tractors, etc., musical instruments, clocks and watches, have substantial tariff protection against imports from the Commonwealth. Others do not need it as yet, since other Commonwealth countries are not in a position to offer effective competition at present; the future is another matter. Whatever the merits of free trade as a universal system, or even for one country alone, there is singularly little to be said in equity for a system which subjects certain industries to the full force of competition from low-wage, duty-free imports but which protects others.

Imports of cotton goods from the Commonwealth have received the lion's share of attention in recent years, but imports of other categories are of some importance. Belgium is a traditional supplier of yarn-dyed fabrics, especially damasks and moquettes, and imports of these from Belgium have increased from an average of less than 5 million sq. yds. per annum in 1950-53 to a rate of over 11 million sq. yds. in the first half of 1958. Imports of cotton prints from Germany over the same period have increased from less than 1 million sq. yds. to about 5½ million; a considerable proportion of these is known to consist of non-German cloth. Finally, imports of piece goods of man-made fibres for home consumption have remained fairly steady around the 34 million sq. yds. mark in recent years. This represents roughly 6% of home consumption of these fabrics, a not inconsiderable proportion in view of the very high tariff. Most of them come from Italy, Germany and France, and in many cases dual pricing or export subsidies are believed to be at work. The export performance of the U.K. cotton industry can only be properly appreciated in the whole context of world trade in textiles. Table 2 shows the most important developments since 1950-53.

Table 2

Exports of Piece Goods from Major Exporting Countries
(Million linear or square yards)

	1950-53	1954	1955	1956	1957
Cotton					
U.K.	780	640	550	470	460
Western Europe (est.)	1,350	1,250	1,140	1,070	1,100
U.S.A.	690	610	550	520	560
Japan	960	1,280	1,140	1,260	1,470
India	780	860	750	740	880
Other countries (est.)	520	800	830	1,030	1,170
Total	5,080	5,440	4,960	5,090	5,640
Man-made Fibres					
U.K.	190	180	130	120	110
Western Europe (est.)	370	520	470	490	550
U.S.A.	200	220	220	220	210
Japan	330	640	910	1,140	1,370
Total of Above	1,090	1,560	1,730	1,970	2,240

The first thing that needs to be said about these figures is that 1957 was a wholly exceptional "boom" year, during which the U.K. was virtually the only country to experience a decline in shipments. Total world trade in piece goods of cotton and man-made fibres in 1957 was well above the 1936-38 average of about 7,300 million sq. yds., but there is no doubt that the 1958 figures, at least for cotton cloth, will be considerably below the 1957 level. There is a possibility, however, that the long-term downward trend in cotton textiles will be halted for, although new mills are coming into operation or are planned in many parts of Asia and Africa and increased protection is being sought by several established industries, there will be a considerable expansion of intra-European trade when the progressive tariff reductions envisaged in the Common Market and the Free Trade Area begin to take effect.

The second point to be noted is the astonishing Japanese export performance in rayon fabrics. As a result rayon cloth is being bought on a considerable scale in many parts of the world where it was not in widespread use even a few years ago. It is perhaps surprising that this very great increase in exports of rayon cloth has not reduced trade in cotton cloth, but the expansion of total demand has been sufficiently great to accommodate both. Japan's exports of cotton fabrics have increased considerably since 1950-53, whereas India's have remained fairly steady and U.S. and European exports have declined. The U.K. has fared worst of all. But perhaps the most significant factor is the big increase in exports from "other countries." This group includes Hong Kong and the Communist countries; the increase in exports has come mainly from the latter, particularly China. The prospects of greatly increased

competition as world trade subsidies from the inflated 1957 level makes one question the wisdom of a country like Pakistan attempting to break into the export trade in cotton piece goods at this time and of Hong Kong's undue dependence on its cotton industry as an earner of foreign exchange.

Although the bare figures of U.K. exports make unimpressive reading, even in comparison with those of the U.S.A. and continental Western Europe, some allowance must be made for the fact that the full force of Asiatic competition has been felt to a greater extent in many of Britain's most important markets than in, say, Canada or Europe, where the main interests of U.S. and continental exporters lie. How our trade with individual markets has fared is shown in Table 3.

Table 3

Exports of Piece Goods from the U.K.
(Million square yards)

	Cotton			Man-made fibres and mixtures		
	Average 1950-53	1957	Annual rate Jan.-June 1958	Average 1950-53	1957	Annual rate Jan.-June 1958
British West Africa ..	147·1	67·8	51·4	25·1	3·3	2·0
Union of South Africa	86·2	57·3	62·7	28·9	14·6	10·4
Fed. of Rhodesia and Nyasaland	26·7	25·0	21·5	7·6	23·2	20·9
British East Africa ..	16·1	10·2	7·5	4·9	2·0	·3
Pakistan	37·9	·6	·2	—	—	—
Malaya (including Singapore)	36·2	5·9	2·2	4·9	1·1	·7
Ceylon	11·3	7·4	5·9	—	—	—
Australia	112·7	71·4	71·9	39·8	13·4	12·5
New Zealand ..	38·2	33·9	33·8	17·6	12·6	12·7
Canada	18·0	10·3	5·6	—	—	—
British West Indies ..	11·4	6·8	6·8	7·8	4·6	3·6
Irish Republic ..	18·8	13·5	14·9	8·6	6·9	7·2
Scandinavia	44·2	22·9	20·2	8·3	3·7	4·3
Belgian Congo ..	11·1	21·6	19·3	—	—	—
French West and Equatorial Africa ..	10·2	23·8	21·8	—	—	—
Burma	14·1	3·1	1·4	—	—	—
Total ..	776·7	455·8	415·2	186·0	111·2	98·5

In fabrics of man-made fibres the story is a sadly monotonous one, with British exports contracting even to countries where the market has expanded greatly, and Japanese exports showing notable increases in practically every case. More disturbing, German and U.S. exports to many of these markets have expanded, or at least been maintained; in almost all cases however Italian exports have shared the fate of our own. Australia is rather a special case; total imports have contracted appreciably, but our share of the market has also decreased. In the Federation of Rhodesia and Nyasaland we have benefited by an expanding market and favourable tariff treatment.

For cotton cloth, also, Rhodesia and Nyasaland is one of the brighter spots in the picture. In almost all the other markets listed Asiatic exporters have captured a substantially greater share of the market. The main gainers have been India in British West and East Africa, Hong Kong in South Africa, Japan almost everywhere, China to a considerable extent in Malaya. Imports from any source into Pakistan have, of course, virtually ceased. In Australia our share of an expanding market has been reduced from a half in 1950-53 to a quarter in 1957, with Japan, India and Hong Kong all showing substantial increases. Even in New Zealand, where the volume of our trade has been fairly well maintained, Japan has cut into our share of an expanding market. Among European countries who seem to have done better than the U.K. since 1950-53 are the Netherlands, in British West Africa, South Africa and Scandinavia, and Germany and Belgium, in Australia and Scandinavia. The two principal exceptions to the story of declining British exports are the Belgian Congo and French West and Equatorial Africa. In the case of the former most European countries have benefited at the expense of Japan, apparently by reason of the import licensing system; in the case of the latter direct shipments from France and other French possessions have suffered, although much of the cloth shipped from the U.K. is of French origin.

Of our total exports of cotton cloth the proportion consisting of cloth woven abroad and merely finished here has increased from about 20% in 1950-53 to nearly 30% so far this year. Most of these re-exports have traditionally gone to the British, French and Belgian colonies in Africa, but in the last year or so an increasing quantity has been going to South Africa. Recently that country has announced measures making it much more difficult for such re-exports to enter at the British Preferential rates of duty. Provided that this does not simply lead to a diversion of trade in favour of direct shipments from the country of origin of the cloth it should result in a useful increase in demand for cloth woven in the U.K. Elsewhere the outlook for exports is not too promising in face of increasingly stiff competition. There is no intrinsic reason why it should not be possible to meet and to beat competition from other European suppliers but Asiatic competition is another story. Australia's granting of most-favoured-nation treatment to Japan has already led to a big increase in imports from that source, and it looks as though something similar may happen in New Zealand. Both countries, moreover, seem likely to reduce the preferences which the U.K. enjoys. The pattern of events in these vitally important markets can only be viewed with anxiety.

Free Trade Area

The animated discussion of the proposed European Free Trade Area has subsided somewhat this year since the negotiations on it appeared to have got bogged down but will surely revive if and when progress is seen to be made. He would be a rash man who would venture to predict the net gain or loss to the U.K. industry caused by the creation of a Free Trade Area in Europe. Who can say how wage rates and productivity in the different countries will compare or what exchange rates will be in 11 or 14 years' time, when tariffs are finally removed? Nevertheless one can venture certain opinions. Provided the question of the definition of origin is satisfactorily settled there seems to be no reason to expect drastic losses or gains. The differences in average costs of production between the textile industries of the various countries are not as great as the differences within individual industries, and are of the same order of magnitude as transport costs between countries. The latter will therefore provide a considerable margin of protection to firms in their home markets.

Contrary to a widespread impression there is no reason to think that output per head is very different in this country from what it is on the continent. The bogey of low wages in Italy is not so terrifying when it is realised that, despite her high reputation for design, the Italian export performance in cotton and rayon goods has been by no means brilliant in recent years. Although a number of British firms will undoubtedly suffer severely from continental competition in the home market there should be very good opportunities in Europe for other firms, e.g. the producers of fine yarns and fabrics. It is possible, too, that availability of a greater variety of continental goods at lower prices will help to diminish the insularity of the British public's taste in design and colour. If so it may prove a blessing in disguise to British manufacturers and converters. There is a fair chance that increased competition

from continental manufacturers will have a stimulating effect on the U.K. cotton industry; in this respect it will differ fundamentally from the competition at present being experienced from India and Hong Kong, which is almost entirely destructive and demoralising. Already there are signs that the mere prospect of the Free Trade Area has induced some firms to consider seriously their chances of breaking into the European market.

Another aspect of the demand for the products of the industry deserves to be mentioned in this place. Table 4 compares the year-to-year percentage changes in cloth availability for the home market (as in line 6 of Table 1) with changes in consumer expenditure on clothing corrected for price movements. The latter is introduced in this context not because it is directly comparable with the former but merely to give an indication of the order of magnitude of year to year changes in final offtake.

Table 4

Year to Year Changes (percentages)

	1948 to 1949	1949 to 1950	1950 to 1951	1951 to 1952	1952 to 1953	1953 to 1954	1954 to 1955	1955 to 1956	1956 to 1957
Cloth available at home ..	+7	+13	+8	—30	+15	+21	—6	—2	+5
Personal expenditure on clothing revalued at 1948 prices ..	+8	+4	—9	—1	+2	+6	+7	+3	+1

The differences between the two lines of the table are striking and are to be explained, of course, by stock movements. The U.K. cotton industry is by no means unique in this respect, but the fluctuations are certainly aggravated by the horizontal structure of the industry. The process by which this happens is fairly well known by now, and is seen in its most striking form when prices of raw cotton are generally expected to move either upwards or downwards. If an upward movement is expected firms tend to place orders for supplies in excess of the quantity required to meet their commitments in the hope of making an additional profit or perhaps of insuring against a possible physical shortage. The process is exaggerated the farther back one goes from the ultimate consumer, so that the spinners, the first links in the chain, derive the maximum "benefit" from this speculative buying. The producing sections increase their output as far as possible to fulfil their orders and imports may also increase, with the result that available supplies quickly exceed final offtake and stocks in the pipeline begin to mount. This phase of stock increase often lasts a surprising long time but sooner or later—the sooner the better—the process must come to a halt. When it does the rate of output or the rate of import or both must fall, and the decline is intensified when, as invariably happens, something occurs—an expectation of falling prices, say, or an increase in interest rates—to encourage stock reductions. So far 1958 has been a stock-reducing phase for the U.K. cotton industry. There is one consolation; as supplies have fallen below final offtake there must in the nature of things be an improvement in output sooner or later—unless, of course, it is prevented by another increase in imports! It may well be that the contraction of the U.K. cotton industry has been intensified by this stock-cycle. So many workers leave the industry on the downswing, most of them to find alternative employment in other industries, that on the upswing mills tend to be short of labour and therefore miss business, particularly export business, which they could otherwise have had and thereby, perhaps, lose long-term connections. The root cause of the trouble is the fact that the producing sections, being so far removed from the consumer, are unable to distinguish between "real" and "speculative" demand. Some way of diffusing information about the current situation more widely might help to damp down these undesirable fluctuations. Finally, is it merely coincidental that the years of over-supply, 1951, 1954 and 1957 are separated by intervals of three years or is there an underlying cause?

The contraction in demand, which has been analysed above, has of course resulted in a parallel contraction in the productive factors of the industry, both human and material. Since the beginning of 1955 at least 330 units have closed down. (A number of these "units" were merely single departments of mills carrying on more than one activity, the remaining departments continuing to run.) Not all of the closures can be attributed to falling demand; some were the result of the rationalisation of production within multi-unit firms. Although there have been quite a number of cases of large, well-equipped mills having to close it is probably true that on the whole the mills which have gone out have been the smaller, older, unmodernised ones. Mr. W. T. Shackleton showed in his paper "A New Look at the Structure of the Industry," read at the 1956 Cotton Board Conference at Harrogate, that the mills which had closed were smaller on average than those which remained in existence. More recent figures show a similar pattern, although the proportion of medium sized mills among the closures seems to have increased.

Machinery Decline

The amount of machinery installed in the industry has declined both because of the mill closures and because of the reduction of capacity in many mills which are still running. The number of spinning spindles in place has fallen by 22% since 1951; there has been a slight fall in the number of ring spindles, but the number of mule spindles has been reduced by as much as 39%. Measured on a mule-equivalent basis ring spindles now account for 59% of total spinning capacity, compared with 47% in 1951 and 36% in 1937. The doubling section of the industry has been particularly badly hit by the trend of demand away from doubled yarns, and the number of doubling spindles in place has declined by no less than 37% since 1951. The number of looms has fallen by about 28% in the same period, while the proportion of fully automatic looms has increased to about 17% of the total, compared with 9% in 1951 and only 3% in 1937. The reduction in the industry's installed capacity, striking as it has been, has barely kept pace with the reduction in demand. 1957 was a "boom" year for production, yet at no time and in no section (except waste spinning) was more than 80% of the installed machinery actually running; in both spinning and weaving the percentage was less than in the two previous "boom" years, 1954 and 1951. The machines which were running were being used slightly more intensively, however. The proportion of spinning spindles working two or more shifts increased from about 1·1% in the fourth quarter of 1951 to about 2·8% in the fourth quarter of 1957, while over the same period the proportion of looms working two or more shifts increased from about 8·4% to about 15·3%.

Certain otherwise well-informed observers of the industrial scene appear to be under the impression that very little has been done by Lancashire since the war to modernise its equipment. In fact in the twelve years from 1946 to 1957 the industry spent round about £150,000,000 on capital account. Census of Production figures of

capital expenditure as a percentage of "net output less wages and salaries" (which is equivalent to gross trading profits plus one or two relatively minor items such as rent, rates, advertising, research, etc.) for the years 1948 to 1956* give the following results: cotton spinning and doubling 19%, cotton weaving about 17%, textile finishing 24%, all manufacturing industries 22%. The cotton industry, especially the finishing section, comes quite well out of the comparison.

As mentioned earlier the cotton industry's labour force has declined from a total of 370,000 towards the end of 1951 to 265,000 at the end of June 1958. The astonishing thing, which hardly anyone would have dared to predict, is that a contraction of such a magnitude should have resulted in so little overt unemployment. Of course, the number registered as unemployed is only part of the story. Many married women have retired from the labour market, either permanently or until trade picks up again. Other displaced cotton workers have had to accept worse paid jobs in other industries. Many of those still on mills' books have had their earnings cut by short-time working.

Ever since the end of the war the labour force of the cotton industry has been elderly in comparison with that of other industries, and the disparity has become even more marked in recent years. The proportion of male workers aged 45 and over in cotton spinning and weaving increased from 51% in May 1951 to 59% in May 1957; over the same period the proportion of female workers aged 45 and over increased from 34% to 44%. In industry as a whole the proportion of workers aged 45 and over in May 1957 was only 40% for men and 33% for women.

What are the prospects for the U.K. cotton industry in the near future? Any assessment of the probable level of production in 1959, say, must depend upon a number of crucial assumptions. However, *if* imports for home consumption remain at about the level reached in 1957 and the first half of 1958 and *if* home consumption is not reduced by a general recession in the economy, production in 1959 might total about 2,250 million sq. yds., ignoring any stock movements and allowing for a further possible fall in exports. This would require a rate of output some 7% greater than the June 1958 level, and a labour force of the present size (June 1958) working full-time would barely be sufficient to secure this output. Thereafter, again assuming that imports for consumption in the U.K. do not increase, the annual increase in home market demand which can be expected should counterbalance any further decrease in exports which may occur. Even without any increase in the extent of shift working, which is an extremely improbable assumption, the estimated level of output would involve the operation of less than 80% of present installed capacity. Thus competition is likely to remain severe and more firms will be forced or will choose to go out of business. This process may even be speeded up in the weaving section, if the plans for getting rid of redundant capacity bear fruit, and also in the spinning and doubling sections, if the Restrictive Practices Court gives an unfavourable verdict on the minimum price schemes. The trend towards vertical integration is likely to continue among the firms who remain in the industry, while the larger firms will also continue to take steps to diversify their interests, both within the textile industry and outside it. There is a strong incentive for firms to invest part of their capital outside the cotton industry. How much they will choose to retain in the cotton industry will depend, above all, on their view of the prospects for sales at remunerative prices in the home market.

* Except 1950 for which no figures are available

MAN-MADE FIBRES

(*continued from page 11*)

with a yarn such as nylon or wool which will be substantially unaffected when heated, and then to heat to a temperature at which the thermoplastic yarn contracts, forcing the other yarn which retains its normal length to cockle and crimp. It is stated that the optimum temperature and time of heat treatment of a folded yarn containing Courlene X3 is at 120°C. for four minutes. A fancy check velvet made by using the shrinkage properties of the polyvinyl chloride fibre Fibravyl is shown in Fig. 5.

Flameproofing

The Textile Institute devoted a day's conference (Oct., 1957) to this problem; it is an old one and not yet satisfactorily solved. "Many promising finishes had turned out to be unreliable because, although they survived a certain number of washes, they failed after about the tenth as a result of the cumulative affect of soap on the finish."[13] Nylon and Terylene are sufficiently flameproof for most purposes, but finishes that may be applied to the fibre for other reasons than flameproofing may affect their liability to ignite, e.g., "nylon and Terylene fabrics, of normal weight for apparel, did not propagate flame in the vertical test, but nylon after chrome dyeing and when stiffened with melamine resin became flammable."

All the P.V.C. fibres are non-flam but their low melting point makes them unsuitable for washable garments. Dynel, saran and Verel will not support combustion and probably represent the best available today.

Future Trends

All the indications are that the fibre synthesists are paying more and more attention to kindliness of fibre, soft handle, good drape, high moisture regain and reasonably good dyeing affinity in their attempts on the apparel market; this move is to be welcomed and in it we find an attempt to approach to the chemical nature of the natural fibres. For industry, high tenacity, durability, and chemical and biological immunity to attack are desirable and are available in several fibres. Industry is making more and more use of them, witness nylon in tyres, and their development will be continuous. But one should keep a clear separation of thought between fibres for the home and fibres for industry; the best for the one is unlikely to be the best for the other. As for the rayons, they will continue to flourish; they have, for a long time now, been very good indeed.

References

(1) M. K. Sen and M. Ramaswamy, Kinetics of fibrous acetylation of cotton and jute, J. Text. Inst., 1957, 48, T75-T80.
(2) Portsmouth Evening News, August 15, 1958.
(3) R. Dumon. The electrical resistance of synthetic and cellulose acetate fibres. J. Text. Inst., 1957, 48, T35-36.
(4) D. Ahlquist, Problems of Terylene, Tailor and Cutter, Jan. 10, 1958, 93, 41.
(5) High purity propylene, Chem. and Engng. News, April 28, 1958, 36, No. 17, 34.
(6) J. W. S. Hearle, Research, 1956, 461, also Silk and Rayon Record, 1956, 30, 354.
(7) M. E. Baird, P. Hatfield and G. J. Morris, J. Text. Inst., 1956, 47, T181.
(8) I. U. Nilson, W. J. Onions and C. S. Whewell, J. Text. Inst., 1957, 48, T374.
(9) N. M. Mims, J. Text. Inst., 1957, 48, T375-6.
(10) R. W. Moncrieff, "Wool Shrinkage and its Prevention," p. 403. National Trade Press, London, 1953.
(11) R. W. Moncrieff, "Man-Made Fibres," pp. 481-2, 3rd Edition. National Trade Press, London, 1957.
(12) J. L. E. Seidler and D. Young, J. Text. Inst., 1957, 48, 300-302.
(13) J. Text. Inst., 1947, 48, P. 744.

Research and Technical Developments in Cotton Spinning and Weaving

Progress in opening, blending, carding—and dust control—drafting and spinning, waste separation systems, yarn preparation and sizing, winding, weaving, new and more accurate testing methods and instruments, and various textile accessories

By A. CROASDALE, F.T.I.*

ANYONE having to keep up to date with present textile developments must find it difficult to make time to read the enormous amount of literature pouring out from many sources. In fact, in most cases the time can only be found to keep abreast of the developments in a particular field and outside this, reliance has to be placed on the textile press such as "Textile Manufacturer" to present a concise picture of the new ideas, machines and techniques taking place in other sections of the industry.

Raw materials never remain the same. Natural fibres are plagued by the vagaries of climatic and breeding conditions, which lead to variations in fibre characteristics, such as staple length, maturity, cleanliness and colour, all of which it is desirable to know if processing is to be carried out efficiently. The introduction of more new man-made fibres adds to the problems brought about by the use of those which can now be considered as well established. Add to this, the fact that many fibres, natural and man-made, are blended together to provide specific character to yarn and cloth, and it becomes apparent that before any processing whatsoever takes place problems arise for which solutions have to be found.

The movement of raw materials is by no means free. In some cases government policy affects supply and demand, whilst in others the supplier has to restrict sales on a quota basis because demand outstrips supply; both forms of activity effect the market price. Cost of raw materials is always an important factor, but certainly under severe competitive conditions such as are being experienced at the present time. It is a good thing that despite unfavourable trends developments and new ideas continue at a favourable rate to further progress.

Over the last few years research in its various forms has played an increasing part in the textile industry. It could be said that the man-made fibres were born of it, whilst the natural fibres have been given an additional charm by its diligent application. No one could argue that this research has not been worthwhile, for it has paid good dividends. No one would argue that it should stop but it is sometimes debated who should pay for it. The truth is that as individual firms, a national industry or an international industry we cannot afford to be without it. Out of research in other fields have come new metals, ceramics, synthetic resins and plastics. These have been used in the textile industry in numerous ways to improve the processing machinery, the ultimate product and the environmental conditions under which labour works.

Spinning

To a greater or lesser extent, hoppers in cotton spinning are opening machines which in principle deliver a uniform feed to another machine. Cleaning is not their main function but they do liberate dust and this is carried away by a dust hood over the bin of the hopper. A new hopper has been designed and tried out under mill conditions. This has been coupled to the "Shirley" opener unit and is called the "Tweedale-Shirley" hopper opener.

The new hopper can be used in a mill opening sequence where a standard hopper feeder is used. The best application is at the earliest point in the line where a normal hopper feeder is used; in this way full advantage is taken of the opening, cleaning and dust removal capabilities of the machine. The new hopper is part of the "Clean-O-Matic" opening lines produced by Tweedales and Smalley. These lines vary depending on the type of cotton or other fibre being processed, the production rate desired and arrangements for blending.

Hard waste, used to a considerable extent in condensor and preparation spinning, is broken down into individual fibres by passing the waste through a "running down" machine which opens the tightly spun threads, and then through a series of six units—the "devil"—each section of which has its own feed, cylinder, cages and covers. At the first stage some yarn is broken into fibres while some passes on and is not opened until the last stage. By the time those fibres opened at the first stage reach the last stage some will have been broken, shortened and formed into nep. A system for separating good fibres as soon as opened is most desirable.

A simple separation system, although not 100% effective, has been developed and can be fitted to existing machines. This separates out the larger and knotted yarns at any of the six stages and the stripping has been modified to keep the cylinder more free from cotton and prevent nep formation. It is also very effective in eliminating "impurities" such as nails, hair grips and ring travellers, etc., and this has reduced the incidence of fires. The suppliers, Wm. Tatham Ltd., and Tomlinsons (Rochdale) Ltd., have had most favourable reports; lower breaks in spinning, better quality from the same mixing and the same quality

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from fewer cylinders coupled with a saving in power.

In the textile industry much thought and energy has been exercised on the problem of removal and elimination of dust. In particular, dust and fly liberated during carding make for an unpleasant and unhealthy working atmosphere which can result in the occupational disease byssinosis. During the past few years much has been learnt about the physiological effects of dust and about efficient and economical ways of reducing the level of dust in cardrooms. Dr. Schilling and co-workers made a recent survey of the medical aspects and produced a paper entitled "An Epidemiological Study of Byssinosis among Lancashire Cotton Workers" which appeared in the British Journal of Industrial Medicine.

Running parallel with this has been intensive research carried out at Shirley Institute and mills. Considerable success has been achieved in reducing dust and trash in the material fed to the cardroom, but even so considerable amounts are still left in. Oiling the cotton can result in the dust load of the cardroom being reduced by 50% or more but this method often leads to other processing difficulties.

Experiments on cardroom ventilation have shown that to reach a satisfactory dust load very expensive equipment would need to be installed capable of giving high ventilation rates and this fact makes such equipment costly to operate. Attacking the problem at its source, i.e., the card, appeared the most satisfactory approach to the problem and work on these lines resulted in the Shirley "Pressure Point" system of dust extraction for cards which reduces the dust load of the card room by about 90%.

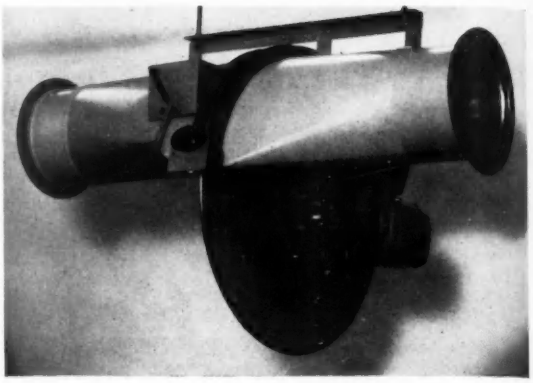


Fig. 2. New type pneumatic delivery wheel for mounting in cotton delivery ducting

The card can be considered as three rapidly revolving cylinders carrying round with them considerable amounts of air. These cylinders are covered by closely fitting surfaces over part of their circumference so that the air in these parts is confined. When the cotton is passing through and being transferred from cylinder to cylinder it tends to form air seals at these points and hinders air circulation thus forming high and low pressure zones. It is at the high pressure zones where most dust is liberated and it is found that the most economical way of relieving this pressure is to exhaust the air away at these points. In addition, dust is liberated at the doffer comb and the calendar rollers. Air turbulence at the comb causes dust to rise and the calendar rollers squeeze out air entrapped in the web and dust and fly come out with this air. A suitable plate arrangement enables the dust liberated at these points to be exhausted away.

Simple in construction, this efficient device causes no interference with normal processing or the operatives' work. The relative amount of air removed is small so that operating costs are kept down and there is little effect on the normal heating and ventilating system. Fig. 1 shows a general view of the device fitted to a card. The various sizes of dust particle have an effect on the efficiency of removal. For particles of dust 2 microns dia. the efficiency is about 78%, while those of 3 to 4 microns (0·00016 in.) the figure is about 90%. This shows that for the particle size such as is encountered in cotton dust the device is extremely efficient.

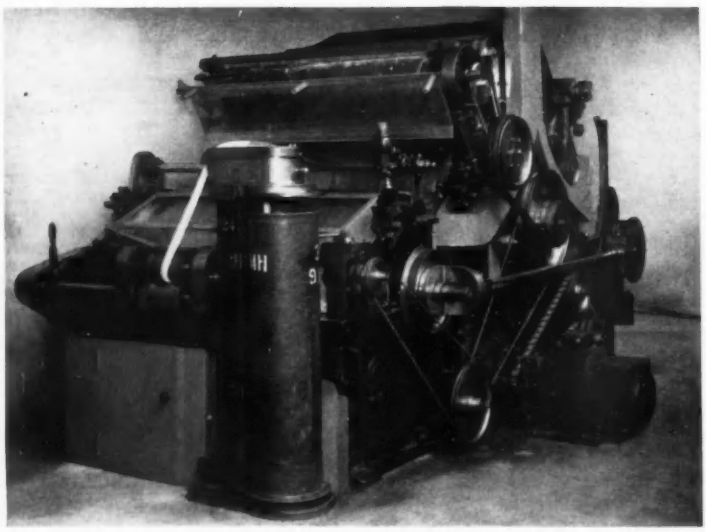


Fig. 1. Shirley "Pressure Point" device on cotton flat card

Pneumatic Delivery

A new type pneumatic delivery wheel (Fig. 2) is a simple machine mounted in the ducting, through which the cotton is passed, at a point where it is desired to deliver the material. It consists of a length of ducting about 4 ft. long with a rotating perforated disc (28 ins. dia.) fitted into it where the ducting is increased in cross section and shaped to permit easy escape of the cotton. The disc is positively driven, can rock sideways and can be quickly and easily removed and replaced. Leather seals are used between the wheel and the ducting and the latter has a hinged metal flap lightly spring loaded on to the disc.

Air is drawn through the ducting and the perforated disc by a fan. Cotton is carried in the air stream to the perforated disc, the control flap is pushed away by the cotton which then falls by gravity. Cotton lumps which can pass through the duct will be

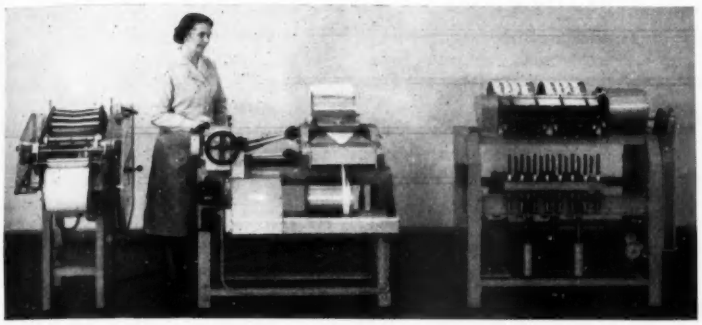


Fig. 3. The Shirley miniature spinning plant

delivered by the wheel the flap being sufficient in size to prevent choking. With the wheel removed the machine operates as a straight length of ducting, thus a number of machines can be put in the same line, the position at which the material is deposited being determined by removing the discs from all but one. It easily copes with 2,000 lbs./hour and has been operated at 4,000 lbs./hour for short periods.

Spinning

High drafting on ringframes is not new but over the years improved systems have been offered to industry. The tendency has been to obtain increased drafts with good control over the fibres to produce quality yarns by these short processing methods. One of these, the GX2 is put out by Casablancas, who are pioneers in this field. Amongst other features, the GX2 system has a new top arm weighting arrangement, a split cradle and ball-bearing top rollers. It has three lines of rollers with double aprons extending forward from the middle line and it will take fibres of up to 3 ins. or more. The back zone can be used either with a break draft for fibres up to $1\frac{3}{4}$ ins., or with positive draft for longer staples. It is claimed that fibre control is exceptional and that drafts as high as 60 are possible. There are also other double apron systems offering particular benefits and more ideas on these lines will undoubtedly be developed in the future.

Most spinning mills have been in the habit of spinning about 100 lbs. of cotton on conventional machinery wherever they wished to test a new or different type of cotton. At the same time they have expressed the view that some method using a much smaller sample of cotton and which could be carried out in considerably less time was urgently needed. Three small machines have now been designed and produced to meet this need—a card, drawframe and a ringframe with eight spindles which combined are known as the "miniature spinning plant." Spinnings on this plant can be made from as little as 1 oz. of cotton.

The card has a taker-in, cylinder, doffer and eight stationary flats clothed with metallic wire which can be lifted off the cylinder for stripping. The drawframe has four line drafting and adjustable roller settings. The ringframe has a special double apron high drafting system and is suitable for staple lengths up to $2\frac{1}{4}$ ins. The card is fed by hand, three passages of drawframe are given, 0·28 hank sliver is fed to the spinning frame, where drafts up to 500 are used to spin counts from 10s to 140s. A test can be put through in little over one hour. The three machines, shown in Fig. 3, are made and sold by Platt Bros. (Sales) Ltd.

Sliver to yarn spinning has been possible for a considerable time, but only on a small scale. However, the Pfenningsberg frame is commercially available and is being tried out in this country. This system utilises two separate apron drafting zones preceded and followed by a pair of drafting rollers. An essential feature of any system of sliver to yarn spinning is that the regularity of the drawframe sliver must be well nigh perfect as no further doublings occur to smooth out any irregularity in the sliver.

Sizing

The automatic size box, on view at the last Belle Vue exhibition, is part of the normal sizing equipment. It enables a pre-determined amount of size to be applied to the warp and controls within very narrow limits at that level. Differing percentages of size can be applied to varying densities of warp sheet very simply by setting pointers on respective graduated scales. As with most revolutionary equipment, improvements have been developed and now the automatic size box has been redesigned and given an entirely "new look" (Fig. 4), although the general principle of operation remains the same.

All mechanism has been totally enclosed with readily removable doors for access and the model has been streamlined; there are no projections at the side. Special arrangements are being made in the mixer compartment so that conventional types of mixings and cold slurries can be used, the size distribution pipe, water spray and water heater now having been discarded. Ease of cleaning has received considerable attention. The box is capable of running at higher speeds to match the new dryers which enable high evaporative rates to be achieved. Enclosed self lubricating bearings are a feature of the immersion rollers.

Fig. 4. The redesigned Hibbert automatic size box

The introduction of the Shirley automatic size box made it possible to revise previous ideas concerning the methods of preparing stock size mixings. Formerly, a size mixing was prepared by boiling the ingredients for periods of up to two hours before pumping the mixture over to the sizing machine for use. Now, cold slurry can be prepared and stored in the cold state ready to be pumped over to the automatic box where it is then boiled and used. Mixings of this kind certainly eliminate the difficulties experienced in pumping gelatinised pastes of high viscosity. Slurries can be accurately prepared and the concentration does not alter during storage.

A slurry can be used for sizing any warp which can be sized in the normal way. A special feature of slurries is that they are perhaps the only way in which the sizing of wet beam dyed and beam bleached warps can be accurately controlled even when such warps are partly pre-dried before sizing. Warps prepared in this manner carry considerable water which can dilute the size paste to such an extent that the uptake is reduced over comparatively short periods of running and therefore the percentage of size applied to the warp is difficult to control and may be insufficient for good weaving.

Slurries, by virtue of the fact that they can be prepared and pumped over when the concentration of solids in the mixing is much higher than with ordinary mixings enables the automatic control to operate even though the warps contain an excess of water. The ingredients are raw starch, an emulsified lubricant and a suspending agent. The suspending agent is important and should gelatinise quickly when added to cold water. It gives to the mixture a viscosity sufficient to prevent the starch settling to the bottom of the beck during storage but not so high as to cause difficulty in pumping. Slurry powder, ready mixed with the necessary ingredients can be purchased from Tragosal Products Ltd., or if desired can be prepared on the spot. A high degree of agitation is desirable to obtain a good mix.

In finishing a readily removable size is most desirable and one that is water soluble, which also gives good weaving, has been much sought after. Modern high speed finishing is possible when this kind of size has been applied to the yarn, but it may be at the expense of additional cost to the processor who applies the size to the yarn as most of the prepared water soluble powders are more expensive than ordinary starch.

It is still common for unmodified and modified starches to be used for the general type of cotton yarn with a suitable proportion of tallow added to act as a softener. For spun rayon warps, water soluble size such as sodium carboxymethyl cellulose ("Courlose," "Cellofas") is preferred by the finishers, but not always by the weaver and starch/gum or gum mixings are used to a considerable extent. For spun nylon and "Terylene" yarns starch/polyvinyl alcohol (P.V.A.) mixtures in the proportions of from one-quarter to one-eighth of P.V.A. of the weight of starch have been used satisfactorily. A lubricant is added in the normal way and because of the hairiness of these particular yarns 16 to 20% is required on the warp depending on the closeness of the cloth construction. This type of mixing has also been applied to yarns made from nylon/cotton, "Terylene"/cotton and other mixtures.

The acid size mixings have good adhesion for the synthetic fibres either in spun or continuous filament form and give good weaving, but these mixings can only be used on plant made from acid resisting materials and there are only a few such plants in operation in this country at the present time. One thing is certain, the search for more effective sizes continues unabated.

Pirn Winding

In pirn winding three main developments have been achieved. One is to make the winding of the pirn a part of the loom. Universal Winding Co. have fostered and brought to fruition a pirn winding device, the "Unifil" loom winder, which can be attached to certain kinds of loom. This winds the pirns and supplies them to the storage battery ready for the change mechanism to insert a new full pirn when required. The "Unifil" winder eliminates the need to transport pirns to the weaving shed and the large package weft supply enables many pirns to be wound and put into the loom magazine in consecutive order. Although the cost of this application may be considered high at first sight the savings in space, capital outlay on more standard types of pirn winders, transportation of pirns, etc. make it a proposition well worth considering for a number of types of fabric.

The speed of textile machines is always a controversial topic. On some of the latest automatic pirn winders speeds of up to 12,000 spindle r.p.m. have been achieved. At this phenomenal speed the Schlaforst "Super-Cop" makes a very stable pirn containing a comparatively long length of yarn and other machines approach such high speeds as this. Another development in pirn winding is filling the pin board or carton whilst on the frame; as the pirn is doffed it is placed automatically in the pin board or laid in the carton.

Weaving

The scientific approach has not only studied looms and their mechanisms but also their effect on the ultimate fabric produced. It has been found that some mechanisms are prone to produce certain types of defects in fabric, such as warp stripes, weft

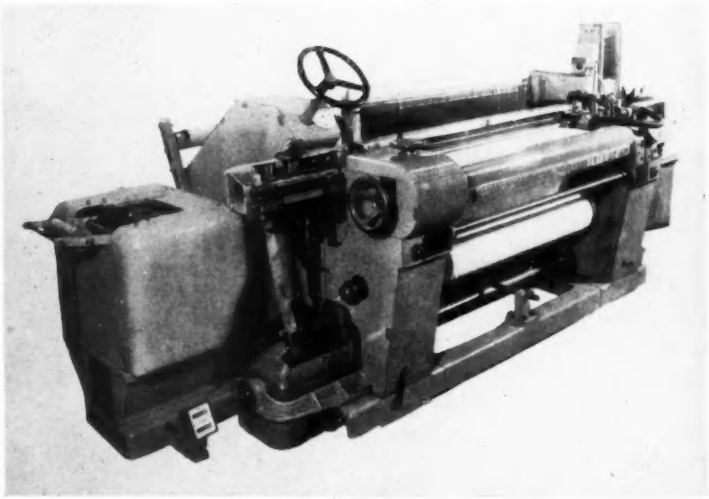


Fig. 5. The Shirley automatic pirn changing loom

bars, broken picks or patterns, lashed-in threads, etc. Such mechanisms can sometimes be modified and made capable of producing better quality cloth, while in some cases a new design is the only answer. Over the years a store of knowledge has been built-up of what actually occurs when the various moving components of a loom operate. This background of information has now been "built-in" to a new loom (Fig. 5)—the "Shirley" automatic loom—which is shown publicly for the first time on the stand of Wilson and Longbottom Ltd.

This pirn changing 2 × 1 box loom has been primarily designed, but not exclusively, for man-made fibres and embodies simplicity combined with precision, especially in those parts which have the greatest effect on the quality of the cloth produced (see "T.M.," Sept., p. 462). Special attention has been given to the troublesome defect of oil contamination by splashing or other means of transfer to the cloth. Worn parts can be replaced easily and parts which could be affected by atmospheric changes have been kept to a minimum. All the operations which weaver and overlooker carry out have been made as simple as possible. Adjusting points are very accessible and can be quickly set, and ease of maintenance is a distinctive feature of the design.

The unique picking mechanism runs in an oil bath and the picking stick is checked by air compression. Special double swells are used to operate the stop-rod and bring the shuttle to rest. Beating-up, carried out by eccentric pins positioned inside the loom side, eliminates oil splashing from such sources as the conventional crank and crank arm. The take-up motion is designed to prevent "visible" barring in the cloth by means of specially chosen gear wheels, the periodicity of which is such that even wheels incorrectly made or mounted do not produce bars, also the motion is disengaged from its drive when the loom stops so there is no need for the weaver to manipulate catches if it should be necessary to adjust the take-up roller. The let-off is the controlled negative type; simple in construction no alteration of the weights is required as the beam weaves down. New beams are put in without any need to adjust the let-off motion and rotate evenly in housings carried on self-aligning ball bearings.

The pirn change is of the stationary two-stack type, fourteen pirns to each. Weft trails are removed by suction and the weft is controlled by suction during normal running to make sure that delicate weft yarns are not damaged. The take-up roller is in the same position as the breast beam on many other looms, and below this is situated the cloth roll which can be filled to 16 ins. dia. and enables the cloth to be wound without creasing and is easily removed from the loom. The box motion, operated by intermittent gearing running in oil, is protected by escape motions.

Either tappet or dobby shedding can be fitted. The latter, designed specially for the loom is a positive, double-lift, open shed type. Simplicity of design permits it to be run at much higher speeds than present loom speeds will allow. Hence, if looms of the future run at higher speeds, a dobby capable of matching them is available. The dobby can be separated from the loom and can be turned by a suitably placed handwheel geared down to facilitate turning either the dobby or the loom. The handwheel is fitted with a calibrated disc to enable loom settings to be made with accuracy and consistency.

A provisional patent has been taken out for a device to prevent the weft trails on rotating battery pirn change automatic looms from being lashed into the sides of the cloth. This attachment makes use of suction for controlling and removing the trails. One nozzle deals with the trail from the ingoing full pirn and another for the trail left by the empty outgoing pirn. These trails are held by mechanical or suction means and eventually are sucked away at both points and deposited in some form of collector or canister. Suction is provided by a fan driven by its own electric motor. Varying flow of air can be arranged at the nozzle. This method prevents accumulations of loose weft yarns. There is no opportunity for them to be

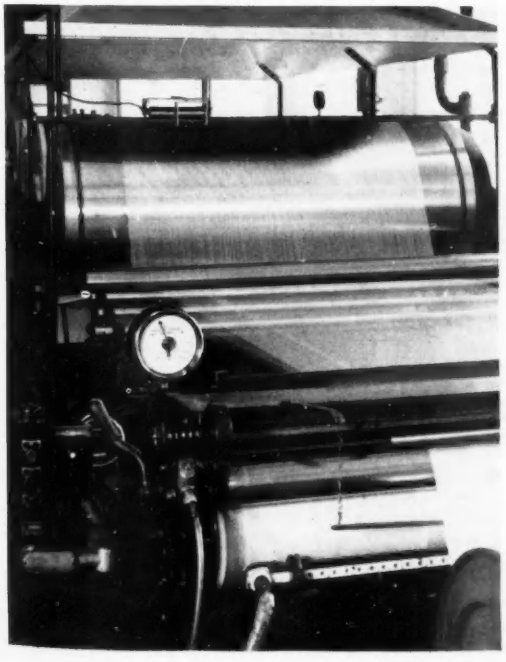


Fig. 6 (left). "Ampli Dry" measuring the moisture in a rayon warp on a sizing machine

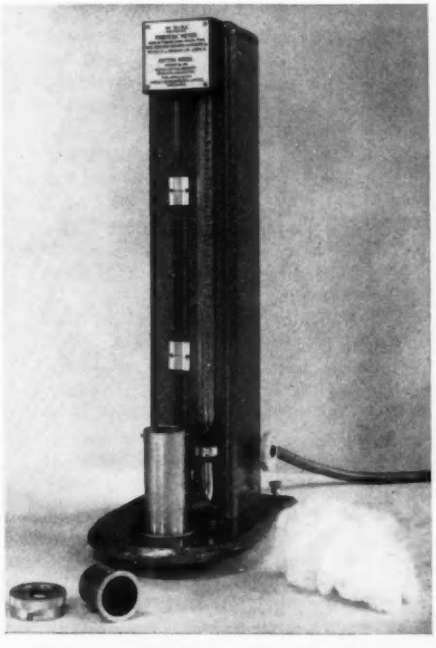


Fig. 7 (right). W.I.R.A. fineness meter enables spinners to make bale selection for their cotton mixings

"whipped" into the cloth to give a double pick effect down the cloth edge at the battery side.

Testing Methods and Instruments

Instrumentation has developed rapidly in the last few years. Many of these can be applied to the machines and serve usually as control or check points in the particular process. The Shirley "Ampli Dry" is an example, the latest development of which is the application of this principle of measuring the moisture in a running warp to acetate continuous filament rayon (see Fig. 6). Other instruments are not part of the process proper but their use enables quality of raw materials to be checked, and also whether the product is up to standard.

Much has been heard of the micronaire test, used widely in America, and more and more cotton—particularly American type—entering the U.K. has been sold on the basis of the micronaire value. This figure, a combination of the fineness and maturity characteristics of the cotton fibre, is found by passing air through a standard sample of cotton and measuring the resistance to air flow.

An instrument recently offered to the raw cotton and spinning sections of industry is the WIRA fineness meter (Fig. 7) supplied by Shirley Developments Ltd. The results, convertible to micronaire values, enable spinning firms to make bale selection for their cotton mixings. In addition, they can reject bales which fall outside the limits of micronaire value which is best suited to the production line and their products. Quality can be maintained over long periods and although bales bought on micronaire value cost a little extra, savings are possible by these methods of bale selection. There is still need, however, for a quick reliable test for either fibre fineness or maturity. Such a figure coupled with the WIRA fineness meter figure would enable better selection based on a better understanding of the fibre characteristics.

One recent instrument for measuring staple length is the "Shirley" photo-electric stapler. The instrument consists of a light source, photo-electric cells and mechanism for moving the specimen under the light source, a galvanometer and a constant voltage transformer.

Random samples are selected from the bulk material to be tested and from these a special sample is prepared by drawing between the fingers and hand combing. The final tuft is laid on a velvet covered carrier and covered with a protective glass plate. The specimen is then passed through the stapler and the galvanometer indicates the two points on the sample which determine the modal length. The distance between these two points is automatically recorded in $\frac{1}{32}$ in. The modal length is the length of fibre of which there are the greatest number in the sample and this can be quickly converted to effective or staple length. Standard samples are available with a known effective length, and these enable the operator to compare and check the results obtained on the stapler with the standards.

When yarn suffers from periodic irregularity and particularly when used as weft, cloth defects appear in the form of bars. Such faults can be caused by a number of mechanical defects, one of which is the vibration of drafting rollers—a kind of jerking rotation. When a roller vibrates its surface speed alternates above and below an average value at a frequency for that particular roller. The variations put into the material can be ascertained by dividing the surface speed of the roller by the frequency of the vibration.

The "Shirley" roller vibration detector enables vibrations of this kind to be detected at the machines and measures the frequency at which the roller vibrates so that the effect on the yarn regularity can be calculated.

Drawframe drafting systems are dependent upon the grip of the bottom rollers on the sliver for good performance. If the grip is poor the sliver can be pulled forward or backward intermittently with respect to the bottom roller which also affects the surface speed of the top rollers. This kind of movement is known as "slip" and gives rise to irregularity in the sliver. The weighting, draft distribution, fluting and roller settings have to be selected to ensure this does not occur.

During normal running some roller slip does occur and therefore the bottom and top rollers will not always be moving at the same speed. This speed difference may for some reason become abnormal and the "Shirley" relative speed meter has been developed to measure the relative speeds of top and bottom rollers in the different zones. Its main use in mills will be the determination of and the maintenance of the best conditions in drawframe and sliver lap machine drafting systems (see page 59).

The instrument is self-contained, portable and adjustable to fit differing gauges of frame. It is also useful for measuring small drafts (up to 2·00), and small break drafts or web drafts and can measure the effective draft in any drafting zone directly. It is supplied by Shirley Developments Ltd.

With the steadily increasing number of finishes to fabrics, some stiff or flexible, non-creasable or creasable, thickly coated or sprayed, it becomes essential to have reliable tests for stiffness and creaseability. Two new instruments are now available—the stiffness tester and the crease recovery tester. In the former, specimens in the form of strips project over the edge of a horizontal plate so that the angle of droop and the projecting length can be measured. The projected length is measured for a selected angle of droop and "bending length" is measured directly. A projecting length of up to 16 cms., corresponding to bending length of 8 cms., can be accommodated on the instrument.

In the crease recovery tester a rectangular specimen is held between parts attached to a circular back plate which carries the measuring scale and is free to rotate about its centre. In making a test the back plate is turned so that the free arm of the creased specimen hangs vertically downwards and after the allotted period of time allowed for recovery the angle of crease retained is read on the calibrated scale.

Many methods for counting warp breaks in weaving have been tried in the past, and probably the most accurate and least expensive method is that of piecing broken ends with "tinted thrums," i.e. thrums treated with a fugitive tint or some fluorescent material the colour being visible only under ultra-violet light. The number of breaks can be counted as the cloth is inspected.

A warp break counting device, simple in design and construction can be attached to various types of loom and can readily be moved from one loom to another. It counts automatically the number of occasions on which the thrums are used by the weaver to repair breaks. The result is a single figure which is useful if it is only required to know the number of end breaks per 100 yds. If information as to the cause of breaks is part of the experiment then other or additional means have to be adopted. In some cases there is objection to coloured or fluorescent thrums being used, usually by merchants who are afraid that these specially treated ends used for piecing breaks may show as faults in the finished fabric.

Recent Trends in Linen and Jute Manufacturing Practice

Increasing competition emphasises the need for economy in production. Developments in processes and machinery have covered flax retting, dressing and carding, roving and spinning, etc. Considerable progress has been made with modernisation in the jute industry, including opening and feeding machinery, roll forming, spinning and weaving

By S. A. G. CALDWELL, F.T.I.

IT is significant in a century notable for developments in engineering design and industrial production, that no revolutionary changes have been effected in the processing machinery used, or in the sequence of operations incidental to the conversion of natural fibres into finished goods. Even the introduction and processing of man-made fibres, alone or in blends, on existing systems of manufacture, with the specific problems involved, have not resulted in any fundamental change in machine design or in processing technique.

The considerable expansion in manufacturing capacity in all sections of the textile industry in recent years, with the increasing industrialisation of countries formerly mainly agricultural, and the drive towards national self sufficiency, has stepped up the pressure of competition. This has given an impetus to improvements in machine performance and to the adaptation of existing machines, or systems of manufacture, to the processing requirements of other fibres, which has been particularly evident in the linen and jute industries.

The peculiar physical and chemical properties of flax and jute, together with the composite nature of the fibre strands, set definite limits on the range and type of processing machinery used. The need to reduce strand dimensions during the sequence of operations incidental to yarn production, and the lack of uniformity of these at every stage of manufacture, necessitates passage of these through pinned gill bars in the draft field on drawings and rovings. This is a deciding factor in rate and cost of production.

With the scope for short-cut processing in the spinning end more or less defined by the amount of fibre break down required in preparation developments in machinery used in yarn production have been particularly concerned with the most efficient means to obtain this at the minimum cost per unit of output. In spinning medium and fine flax counts, where a final reduction of fibre strand dimensions involves softening of the natural binding material between the ultimates, an alternative to the standard wet spinning process involves pretreatment in the rove state, which permits streamlining subsequent yarn processing operations, with economy in manufacturing cost and improvement in yarn quality.

Speed and Output

The trend of development in textile machine design is defined by the consumer market, and in each section of the industry it is influenced by the competition experienced from rival textiles. The shortage of consumer goods in the early post-war years placed emphasis on quantity, rather than on quality and novelty, so that demand could best be met with equipment capable of high output of standard products. Hence the emphasis then on high speed and automatic machinery capable of meeting the demand and operating economically on a limited range of products.

The expansion in productive capacity of all sections of the textile industry at home and overseas in recent years has necessitated a greater diversity in quality and range of output to stimulate consumer interest. Consequently, while the need for high output capacity is sustained in the interest of economy, adaptability in the quality and variety of product is no less important.

The advent of man-made fibres and their increasing use, alone or in blends with natural fibres, on established systems of manufacture have also had an important bearing on the design of machinery normally used in these. As the problems of manufacture have been shared by different sections of the industry the merits of the various systems of manufacture have been more widely appreciated, with the consequence that there is a growing tendency to adopt and adapt specific machines of one system of manufacture to the requirements of another.

While the suitability of a machine is assessed primarily on its end use capacity certain aspects of design—ease of maintenance, floor area required, etc., have an important bearing. The efficient operation of modern equipment depends on an effective system of lubrication. This is now usually built into the machine, and is frequently automatic. Developments in metallurgy and in machine design have effectively reduced overall dimensions and floor space occupied, as well as the amount of cleaning required. The adoption of streamline design has facilitated cleaning, improved lighting conditions, as well as adding to the spaciousness and general neatness of the layout.

Quality variations in the raw material may involve frequent changes in machine speeds and settings. They also call for careful scrutiny of the material at all stages of manufacture. Consequently the complete automatisation of preparing and spinning is not practicable. Nevertheless it has been possible to relieve operatives in both these departments of much responsibility by the introduction of

automatic devices to detect end breakage, control packaging arrangements at the delivery end, and effect a change over from full to empty containers without the aid of the operative.

Finality in machine design is never possible owing to the many factors—material and economic—that influence it, and by which the merits of a machine for a specific purpose must ultimately be assessed. Best results can only be attained by the combined efforts of machine maker and the user. Realisation of this is apparent in the fact that many of the leading textile machine makers have now established experimental mills, working as independent units, in which the merits of any machine, or any proposed system of manufacture are carefully assessed.

Even so, there has been a tendency by some machine makers in recent years to include auxiliary motions which, in ordinary practice, do not fulfil the claims made for them, doubtless because of the different conditions in which they must function, and of the lack of maintenance staff with the experience necessary for their upkeep. While such provide a certain amount of sales propaganda economic considerations are compelling machine users to consider carefully the merits and demerits of an innovation before committing themselves extensively. With the labour problem becoming less acute in a contracting industry the emphasis in machine design is passing from automatisation to adaptability.

The saying "there is nothing new . . ." could be truthfully applied to many innovations offered today, and this is responsible for the conservative attitude adopted towards them by many manufacturers. The fact that they were not initially successful does not necessarily condemn them. In linen manufacture a patent process for extracting and processing unretted flax was developed by Lee early in the 19th century, while efforts were made to introduce the ring frame for flax wet spinning approximately fifty years ago. These and many other innovations previously discarded, are now contributing materially to the wellbeing of the industry at home and abroad. Their successful application of later date has been due to various factors, including availability of more suitable materials for construction, a wider appreciation of the related problems, and a greater readiness on the part of management and labour to break with tradition.

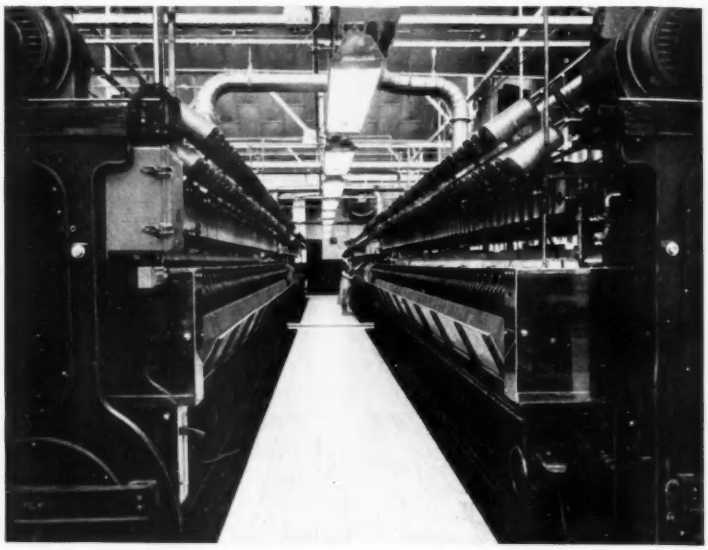


Fig. 1. Modern wet ring spinning frames (courtesy, James Mackie and Sons Ltd., Belfast)

Re-Equipment Schemes

The pattern of re-equipment schemes in the linen and jute industries has been determined in greater measure by immediate market needs than by possible long term requirements, and the result is evidenced in the extent of redundancy in both industries today. With consumer markets now satiated, and the pressure of competition from rival products ever increasing, narrowing profit margins have emphasised the need for careful consideration of future policy. This will be determined largely by two facts which have become increasingly apparent in the last few years—the progressive decline in raw material quality, and the growing demand for novelty and speciality end products. It is unfortunate that the shortage of high quality flax has prevented manufacturers from exploiting the market for quality and novelty goods to the extent warranted.

The method evolved as a war time expedient for processing low grade retted and unretted flax to wet spun counts has been improved and is now being used successfully in some manufacturing centres. It permits a considerable extension of the count and quality range of yarns made from low grade flax. It also provides a much more suitable supply to modern ring spinning frames as pre-treatment in the rove state eliminates much of the gummy matter that is the main cause of trouble when wet spinning flax yarns on ring frames. It provides too an opportunity to effect substantial economies in manufacturing cost where yarns are normally boiled or bleached prior to weaving.

The reason why this method of spinning from treated rove has not found more widespread favour is due in part to the makeshift arrangements necessarily evolved at short notice during the war years which, by their imperfection, detracted from the merits of the system. The availability of ample supplies of fibre for the ordinary requirements of the post-war markets obviated the need for this method of processing. The dwindling supplies of quality fibre are making it increasingly difficult to cover the demands of a consumer market which is becoming more and more specialised in its requirements, so that pre-treatment in the rove stage to extend the spinning range is the obvious alternative in order to retain this profitable market for quality goods.

Post-war expenditure on re-equipment in the linen and jute industries of Gt. Britain and Ireland exceeds £25 million and considerable outlay is still being incurred on plant modernisation. Diversity in the range of machines selected in the new schemes for various processing operations indicates that not all are agreed as to the best type for a specific purpose. In some instances, however, choice is defined by the conditions in which they will operate and/or by the special processing requirements of the end product, so that what may be considered best for one mill or factory is not necessarily so for another.

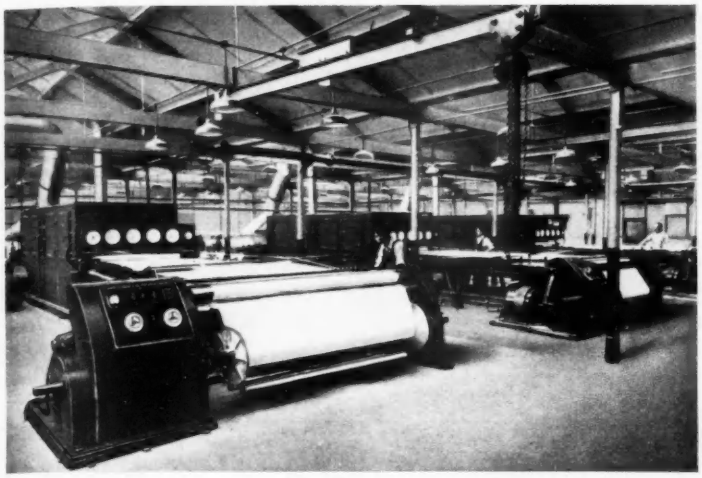


Fig. 2. Modern warp sizing units (courtesy, Joseph Hibbert and Co. Ltd., Darwen)

Flax Dressing and Carding

While no revolutionary changes have been made in the design and operation of machines used in the flax dressing and carding departments many modifications which have been introduced to improve performance have fully justified replacement. In the allocation of capital expenditure under re-equipment schemes there has been a tendency to under-rate the claims of these sections of production.

Improved methods of crop handling and of fibre extraction have resulted in the raw material being received at the mill in a more suitable condition for direct processing on the hackling machine, so that for the most part the preliminary manual operations are limited to piecing out the material into pieces of suitable size for feeding on to the holders, little squaring at the root end being necessary. The open "reedy" nature of machine scutched fibre usually necessitates a greater amount of hackling to ensure the requisite splitting up of the fibre systems. Being generally freer from nep than hand scutched or hand finished machine scutched flax the appropriate pin gradation should be somewhat different. Bearing in mind the general function of the tools in hackling—the coarse pitched for opening, the medium for splitting, and the fine for cleaning—on machines for hackling machine scutched fibre the emphasis in pin gradation should be on the medium range tools, with the finishing rounds in both root and top end sections slightly coarser than for hand scutched fibre.

The development of breaking and ending units to work in conjunction with machines for hackling medium and top grade material marked an important step in mechanisation of flax dressing, and has made possible considerable economies in the cost of this operation. These are extended also to the preparing department by reason of the fact that the automatic spreadboard can now be linked to hackling machines for medium and high grade fibre, thereby eliminating the cost of hand dressing and hand spreading, with the handling costs incidental to these operations.

Modifications effected in the hackling machine, though minor in character, have combined to improve its performance and have contributed materially to raising the yield and quality of output so that the expense of these is recouped in the economies effected in material costs. Most notable include the cam operated head lift motion, the variable speed sheet drive, and improvements in holder plate linings to ensure a more effective grip on the fibre, and prevent undue loss in hackling.

Recent improvements in tow carding equipment are also represented by refinements intended to reduce material losses and improve quality of output. The wider range of raw materials—including man made fibres —now processed on these machines have queried the advisability of using the same machine for carding flax tow and man made fibre staples owing to the different treatments required and it is certain that, where the volume of output justifies it, best results are obtained by using different cards suitably equipped for each group of materials.

As the efficient action of the card is determined in large measure by regularity of feed considerable attention has been given to the automatic feed to ensure uniform weight of lap on the feed sheet. While formerly there was certain justification for the claim that better results were obtained by hand feeding—particularly when processing man-made fibre staples—modern automatic feeds, which have been designed for specific purposes have been proved capable of comparable results at a fraction of the cost.

While wood clothing with tapered steel pins is now the standard covering for flax tow cards some manufacturers have returned to the old-fashioned leather filleting with knee bent pins on workers and doffers of cards used for processing man-made fibre staples, claiming for it a lower carding loss as a result of the superior holding power of the knee bent pins. Where the open nature of the material and freedom from nep dispenses with the need for close setting, and the relatively short staple imposes little strain, this type of roller covering has certain advantages. On the drawing head of cards used for this purpose fibre control in the draft field is frequently effected by rollers instead of by the usual gill bars.

Although the merits of the Eves' high speed push bar drawing head for flax tow cards are widely appreciated many of the old type single crank units are still in operation. The close nip and superior fibre control in the draft field obtainable with the former ensure a more regular sliver and permit economies in subsequent preparing operations. The high speed push bar drawing head is applicable also to line and tow drawing frames, and it is on these that its merits can be more fully demonstrated. The high output capacity permits considerable saving in floor space, as single head units are capable of maintaining supply right through to the roving frame, the drawing heads of which are invariably of the screw gill type. The economy effected in floor space provides an opportunity in many of the older mills to re-arrange their machinery layout to better advantage.

While the merits of lower initial cost, economy of floor space, and high rate of output are strong factors favouring the high speed push bar drawing head its application is usually limited to systems for preparing coarse counts, and to the first and second drawings of systems for medium numbers. The main disadvantage of the old single thread screw gill drawing head—apart from higher initial cost—

was its relatively low rate of output. The advent of the double thread, and, more recently, the triple thread screw has gone far to eliminate the disadvantage of low output, with the added merit of a shorter "nip." With operational speeds of 600 faller drops per minute under ordinary working conditions triple thread screw gill drawing frames have an extremely high output capacity. With the provision of automatic stop motions to function in the event of end breakage, the use of large size cans and mechanical packing mechanism, considerable economies can be effected in the cost of preparation.

Modifications in roving frame design include the use of larger size bobbins than were formerly considered standard for a particular weight of rove. On the "Duplex" roving frame made by James Mackie and Sons Ltd., Belfast, two ends of drafted sliver are doubled together on delivery to form a single rove. Additional to the advantages consequent on doubling this permits the use of a much larger bobbin, thereby reducing the time required for rove replacement and the number of rove piecings at the spinning frame. The difficulty experienced in obtaining suitable wood for drawing and roving frame pressing rollers has been surmounted by the introduction of plastic pressing roller coverings, which can be easily fitted and have the surface skimmed when necessary. With ordinary care the normal running period before re-skimming is approximately six months.

While the merits of the ring spinning frame were soon recognised in other sections of the textile industry its practical application in the production of wet spun yarns encountered many difficulties which have only been surmounted in the last few years. The economies possible by ring spinning, compared with the cost of production on flyer frames, has fully justified the time and study given to the problems involved. Ring wet spinning of flax yarns in the count range 8-80 is now normal practice, due largely to the pioneer work of James Mackie and Sons Ltd., Belfast, who carried out intensive research and extended trials under ordinary working conditions in their own mills before offering these machines to the trade.

The illustration, Fig. 1, shows Mackie wet spinning ring frames in operation in a N. Ireland flax mill, with one operative supervising four sides—approximately 400 spindles. Special features include controlled balloon of constant length, which ensures uniform strength with minimum end breakage at high spindle speeds. The umbrella rove creel is equipped with ball bearing anti-friction skewers to facilitate creeling and prevent drafting of the rove before it enters the retaining rollers. Ample store space is provided over the creel for rove reserve, the bobbins being always convenient to and within easy reach of the operative.

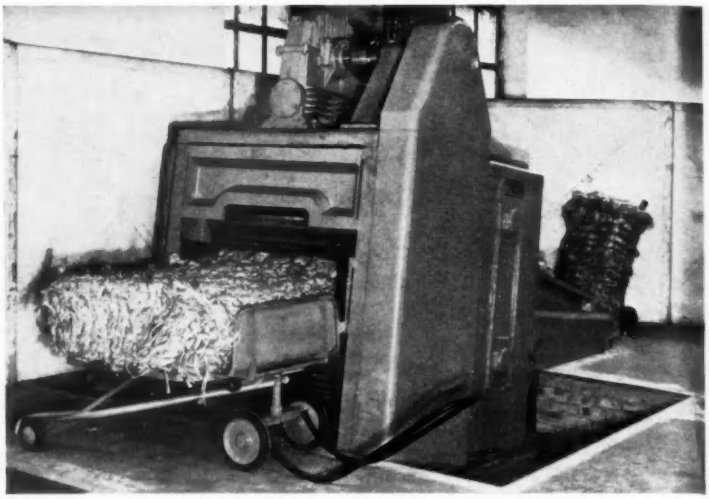


Fig. 3. Compact, streamlined bale squeezer (courtesy, Douglas Fraser and Sons Ltd., Arbroath)

In view of the important bearing of traveller size on spinning performance, and as frames of different pitch spinning a wide range of leas may be running in the same spinning room, the travellers for Mackie frames are supplied in distinctive colours for each size. This eliminates the risk of mixing and facilitates the use of the appropriate traveller for a specific purpose. The large size yarn package obtainable on ring frames, and which can be readily dried prior to winding, if so required, constitutes a suitable supply to modern high speed winding frames.

The boiling and bleaching of linen yarns in package form, which was pioneered by Continental manufacturers, has been introduced extensively into the British linen industry during the last two years. This provides an opportunity to stream line the intermediate processes between spinning and weaving, or spinning and thread manufacture. For this purpose the yarn from the spinning pirns is wound wet to soft built cheeses which go direct to specially designed package bleaching units in which the necessary treatment is effected. On removal the packages are hydro-extracted in an ordinary hydro-extractor, being subsequently dried and conditioned in the usual form of package drying unit. Additional to the economies effected in handling costs further merits of this system include a considerable saving in floor space, a reduction in time required, and more effective use of the bleaching agents. If desired the yarn packages can, of course, be dried for storage prior to bleaching, but with appropriate plant balance a single drying operation subsequent to treatment is sufficient.

Yarn Preparation and Weaving

The increasing use of automatic looms and the need to extend the number of weaving units under individual supervision has stressed the need for efficient preparation of warp and weft supply to improve yarn performance and reduce end breakage. This is particularly true when processing flax and jute yarns which possess a low degree of elasticity, hence also the need for an efficient method of sizing and drying, with uniform control of tension and minimum stress to preserve this. Increasing appreciation of the importance of these intermediate operations is evidenced by the high performance standard of equipment now available.

The warp sizing units illustrated in Fig. 2, made by Joseph Hibbert and Co. Ltd., Darwen, are designed for efficient and economic operation while conserving also the weaving properties of the yarn. The headstock is obtainable in four main sizes to accommodate weavers' beams up to 42 ins. dia., and in widths up to 146 ins. between the flanges. It can also be arranged to

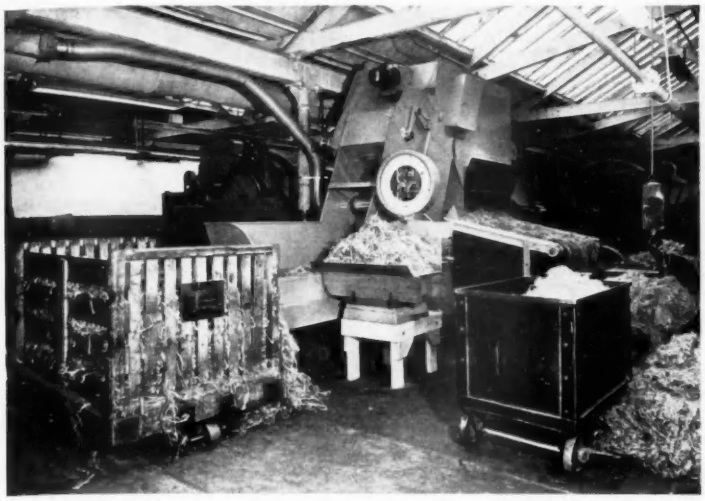


Fig. 4. Short fibre feeder (courtesy, Douglas Fraser and Sons Ltd., Arbroath)

wind two beams side by side simultaneously. A standard speed range of 0-80 yds./min. can be varied to suit requirements, and a regulator mounted on the main panel provides a range of pre-determined beam tensions. When the required tension is set it remains constant until altered.

The moist air drying chamber is fitted with multiple fans which ensure uniform distribution of air flow, the air being filtered before entering the chamber. The heating units comprise two copper gilled tube heaters giving a range of exaporating capacities from 600 lbs./water per hour on the smallest width of chamber. The temperature in the chamber can be fully regulated by thermostatic control. On leaving this the yarn passes through a cooling duct in which it is brought to a reasonable temperature prior to beaming.

During recent years considerable progress has been made in automatisation of the weaving shed, and while no statistics are available of the number of automatic looms installed they now represent a considerable percentage of the total. Despite the economic advantages consequent on their installation it is freely admitted that there is still a place for the ordinary loom, particularly for the production of certain speciality lines. Trouble-free weaving on any type of loom is only obtained with perfectly wound warp and weft packages, and improved efficiency in the weaving shed in recent years owes much to the installation of modern winding and beaming equipment, which conserves the natural yarn properties and ensures uniformity of tension in package building.

Jute Equipment and Techniques

No other section of the textile industry has modernised its equipment and processing techniques more effectively in recent years than the jute industry. This was pioneered by the Scottish section, which at the end of World War II, was confronted with the problem of complete re-equipment to meet the challenge of external competition. In pre-war years Scottish manufacturers had fought a losing battle in world markets against overseas competition. The outcome of the re-equipment programme has been to re-establish it firmly in these again, while the greater versatility of the equipment now installed has permitted it to enter markets formerly exclusive to its more expensive rivals. For this it owes much to the co-operation and inventive genius of jute machine makers for the performance of the equipment provided.

Increasing competition in consumer markets has emphasised the need for economy in production and a greater diversity of end products. These needs are being met by the newer equipment and processing techniques. The high cost of raw material, over which the industry has no direct control, has stressed the need for efficient manufacturing methods to keep the price of end products competitive, and recent developments in machine design have kept this goal in view.

Opening and Feeding

The bale squeezer shown at Fig. 3, made by Douglas Fraser and Sons Ltd., Arbroath, is designed to open whole bales of jute at a time. It is claimed to ensure better opening, better blending, and a saving in labour costs. Whole bales are fed to the machine, the ropes being cut automatically. Pressure is applied on the edges of the laminations in the bale, the individual heads being restored to the open soft condition prior to baling. Consequently, less effort is required in striking-up, resulting in better and quicker work. The bales are delivered from the squeezer on to a special trolley, as shown on which they are conveyed to the striker-up.

The short fibre feeder shown in Fig. 4, also made by the same firm, has been designed to overcome the difficulties experienced in feeding this material through automatic hopper feeders of both the intermittent and continuous weighing types. The short fibre feeder is used for feeding and

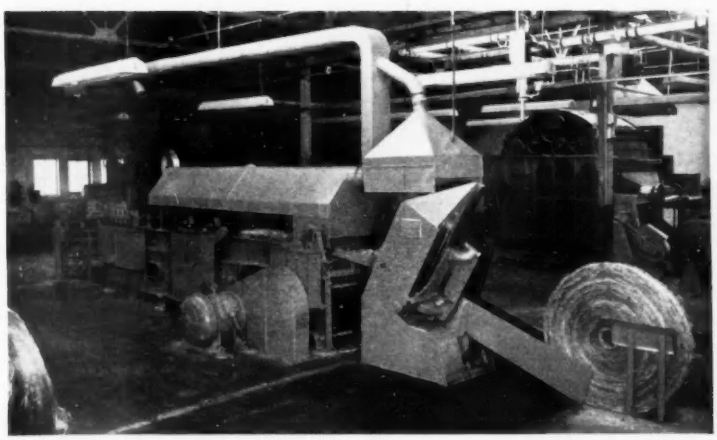


Fig. 5. Combined softening, spreading and hackling machine (courtesy, Fairbairn Lawson Combe Barbour Ltd., Leeds)

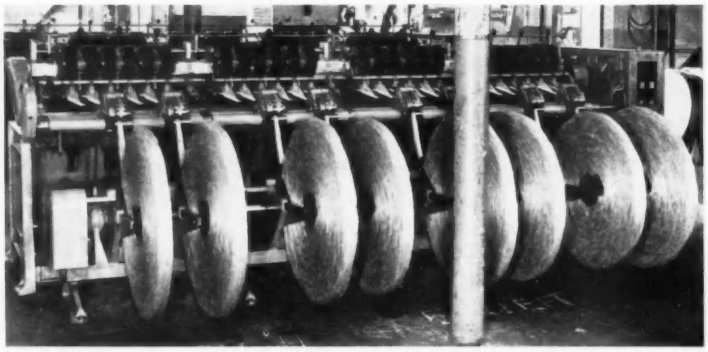


Fig. 6. Second drawing showing DC type cross-wound roll former. Weighing 63 lbs. each, the rolls are 42 ins. dia., and 3 ins. wide (courtesy, Douglas Fraser and Sons Ltd., Arbroath)

blending cuttings and wastes to teaser and breaker cards.

While the multi-roller softener still occupies a useful place in the economy of the industry the Goods' type combined softening, spreading and hackling machine has largely superceded it by reason of the considerable saving in manufacturing cost, and the fact that by reason of the treatment effected at this early stage better performance is obtainable in subsequent manufacturing operations. The machine consists essentially of a travelling feed lattice; set of softening rollers; intake rollers; slow gill sheet and fast gill sheet. Provision is made for application of the softening emulsion during passage of the material over the machine. A single Goods' machine can maintain the supply to four cards and occupies approximately the same floor space as a 63-pair roller horizontal softener. A combined softening, spreading and hackling machine for jute, with sliver roll former at the delivery end, as made by Fairbairn Lawson Combe Barbour Ltd., Leeds, is shown in Fig. 5.

The most appropriate form of sliver package at jute preparing systems is still a matter of controversy. Some manufacturers advocate and adhere to the older system of delivery into cans with, of course, the use of containers of maximum capacity and automatic packing mechanism. Others advocate the use of roll formers on all drawing frames on which the sliver weight is suitable.

A d.c. type cross wound roll former fitted to a second drawing frame, shown at Fig. 6, is made by Douglas Fraser and Sons Ltd., Arbroath. The roll capacity is 42 ins. dia., by 3 ins. wide, and the weight 63 lbs. When the roll is completed the drawing frame stops automatically, the roll being doffed by the attendant, who inserts a new centre and starts the machine again. One attendant can generally supervise six roll former deliveries and also the carriages of the succeeding drawing frame to which they are co-related.

Controlled draft sliver spinning constitutes the most recent forward step in this department of the mill. Later modifications have related to streamlining design to simplify cleaning, reduce floor area occupied, and also the atmosphere of congestion associated with bulky gables and gear covers.

Introduction of the automatic loom to the jute industry was retarded by failure on the part of manufacturers to appreciate the need to modernise the yarn preparation department to ensure fault free beams and cops. Various makes of automatic loom have been available in recent years, as have also shuttle changing mechanisms which can be readily fitted to existing non-automatic looms.

Undoubtedly, one of the most important developments in jute weaving has been the introduction of the circular loom to weave tubular fabrics in weights suitable for sacks and bags. The advantage of these over open width looms include saving in time and material when making up; greater output capacity and saving in labour cost—the productive capacity of four circular looms, which can be attended by one operative, is equivalent to that of twelve broad looms; better quality of cloth; stronger end product; and lower maintenance cost.

The J2 plain motion circular loom, shown at Fig. 7, made by Fairbairn Lawson Combe Barbour Ltd., Leeds, is suitable for weaving two leaf plain woven tubular fabric and has a range 19·3 to 29·2 ins. wide double thickness. The weaving speed with four shuttles is maximum at 520 picks/min. The weft cop capacity is $3\frac{1}{8} \times 11\frac{13}{16}$ ins., and the weight $26\frac{1}{2}$ ozs. The J3 twill motion model has a similar fabric width range with a maximum speed 460 picks/min., using three of shuttles.

The improvements recently effected in jute manufacturing practice are evidenced in the substantial reduction in the number of worker hours required per ton. With a modern jute set-up this is now in the region of 65 for hessian yarns. The progress achieved has been due in no small measure to James Mackie and Sons Ltd., Belfast, who have been responsible for many innovations the merits of which were assessed under ordinary working practice before being offered to the trade.

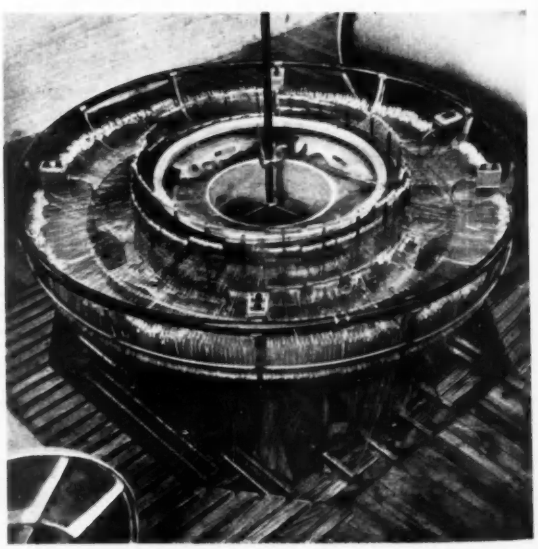
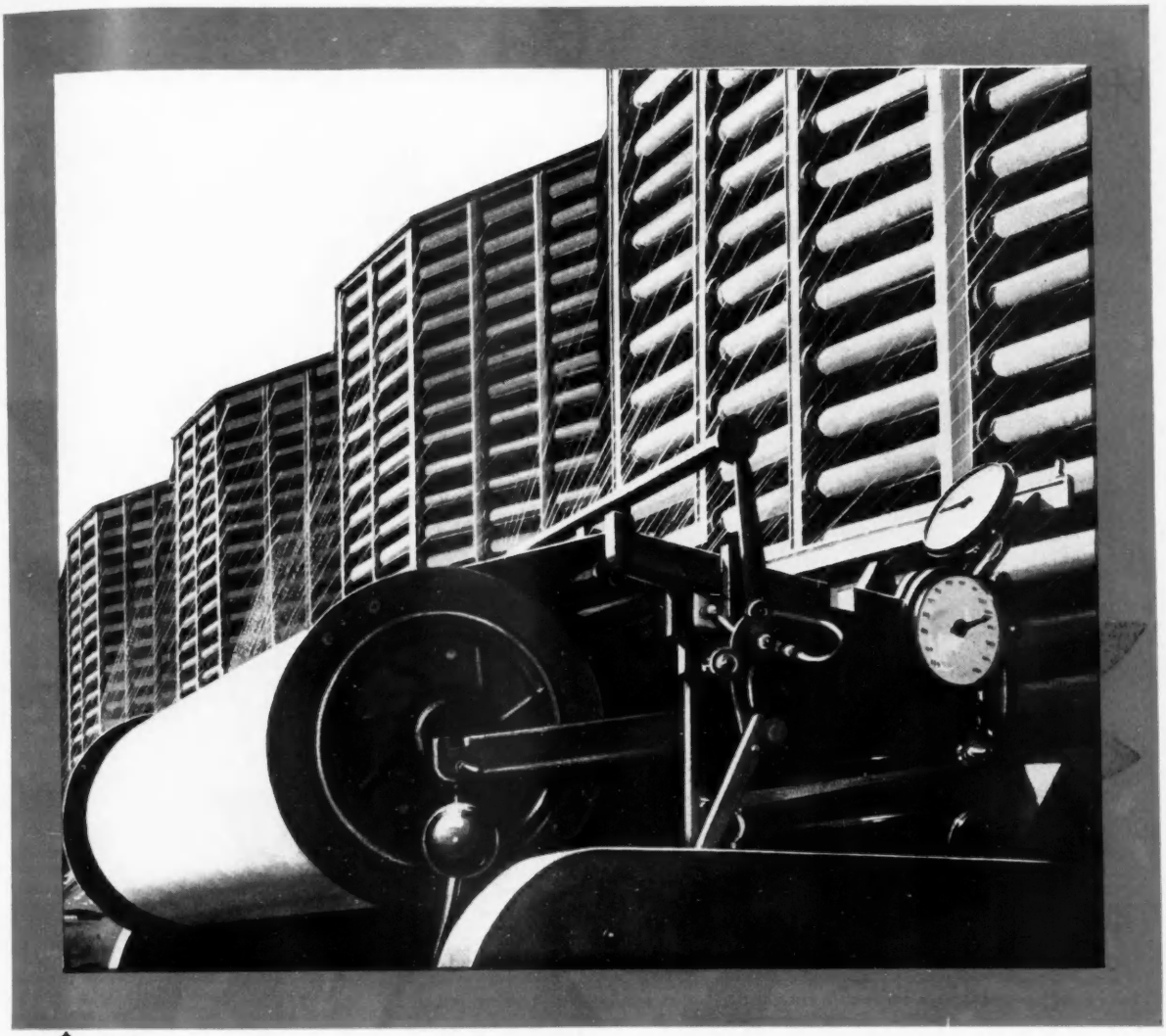


Fig. 7. The Mark II circular loom for jute (courtesy, Fairbairn Lawson Combe Barbour Ltd., Leeds)



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You mean within easy reach of the North Country ? Yes, it's valuable both to us and to our customers. For instance, the designer working on new machinery for producing synthetic fibres is able to work in closer consultation with our Technical Department. In fact, our resources can be very speedily brought to bear on *any* textile machinery problem.

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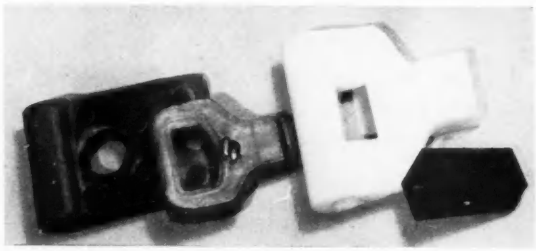
Exhibits at the
TEXTILE MACHINERY EXHIBITION
Belle Vue Manchester England
15th-25th October, 1958

George Hattersley and Sons Ltd., Keighley—Stand No. 1602. Two low-built automatic pirn changing silk and rayon looms—382 Model—are on show with one and four colours of weft. These jig-built looms are exceptionally rigid. both carry batteries made by George Fischer Ltd., models TMS and TMBS4 respectively. The let-off is Bartlett-type for 26 ins. flanges and the take-up is by vernier catch wheel, which allows any number of picks per inch without the use of change wheel. The single shuttle loom, 48 ins. r.s., is running at 200 p.p.m., plain weave, inside treading 4 shafts, with 140 den. yarn. The four colour loom, 57 ins. r.s., runs at 160 p.p.m. treading by 25-shaft cam operated dobby with paper reading mechanism; 100 den. acetate warp and 2/75 weft.

The company's 4 × 4 rising box, pick-at-will underpick loom, 78½ ins. r.s. is fitted with multi-box electric weft feeler motion, which stops the loom at back centre with the nearly spent shuttle at the opposite side to the feeler. An automatic pick finder stops the loom gently at back centre on breakage of weft, with the broken pick in the open shed, and the take-up, dobby cylinder and box motion correctly adjusted for re-starting. This range of looms is available in either over or underpick form, and in reedspaces from 51-120 ins. If supplied as underpick, it is readily convertible to 4 × 1 automatic pirn change. Positive take-up motion with reversing and positive let-off are fitted. The maximum flange diameter is 24 ins. for one beam, or 14¾ ins. for two. Shedding is by 24 shaft (in 28-shaft frame) positive dobby; also supplied in non-positive form if required.



"Beta" buffalo hide pickers and "Polymatic" plastic types

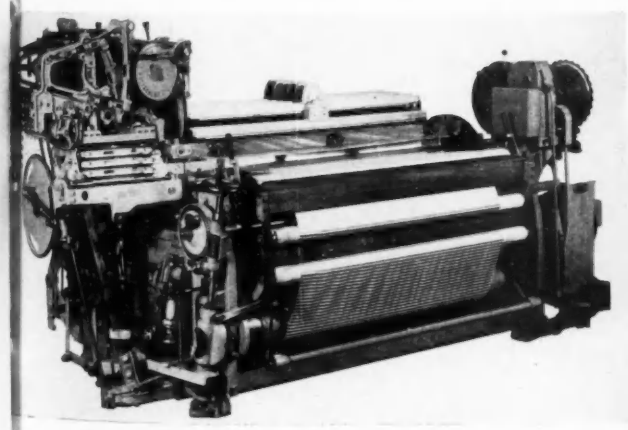
A new automatic standard blanket loom on view, running at 100 p.p.m., is available in reedspaces from 90-132 ins. It is equipped with double series inside tappet treading to 4- or 6-shafts in either plain weave or 2 × 2 twill. An automatic pick-finder stops the loom with the broken pick in the open shed with take-up and shuttle boxes correctly adjusted, and a lag saving motion enables long patterns to be woven with the minimum number of lags. Positive take-up motion with reversing and positive let-off are fitted. Maximum flange diameter is 30 ins. Automatic pirn changing motion in no way limits the sequence of colours from four shuttles. A 10 ins. pirn wound to 1½ ins. dia. holds 3 ozs. of weft.

* * *

British Picker Co. Ltd., Todmorden—Stand No. 1301. This company are the manufacturers of "Beta" quality buffalo rawhide pickers renowned throughout the world for quality and long life on the looms. Other specialities include a large number of buffalo hide accessories for the textile and other industries, the main items being buffalo rawhide tubs, rawhide mallets and hammers made with either double rawhide ends, copper and rawhide or double copper. To assist in weaving fine filament yarns the firm make "No-Oil" loom spindles which, in fact, are metal spindles covered with a special hard fibre and can be fitted with anti-vibration sleeves at the ends. During the last few years plastic pickers have been developed and the "Polymatic" No. 1 loop pickers for automatic looms are widely known, also "Polymatic" No. 2 white plastic pickers for most types of underpick and overpick looms.

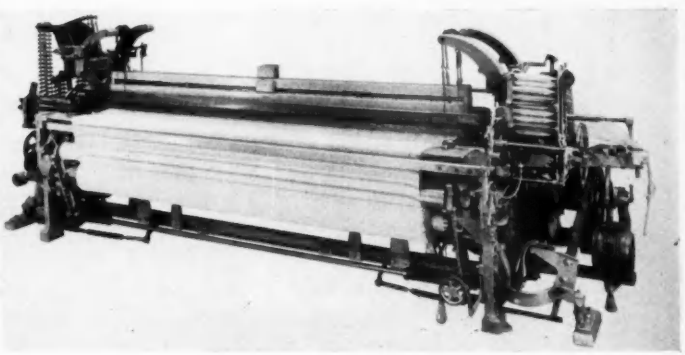
* * *

Samuel Dracup and Sons Ltd., Bradford—Stand No. 1107. Following the success of the card repeating machine introduced in 1955, a new jacquard card repeating machine on view is designed to cater specially for cards with a capacity up to 104 needles for the selvedge jacquard trade and many of the cards used on



Model 382 automatic pirn changing silk and rayon loom

George Hattersley and Sons Ltd., Keighley

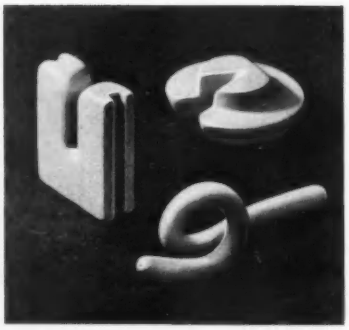


New automatic standard pirn changing blanket loom

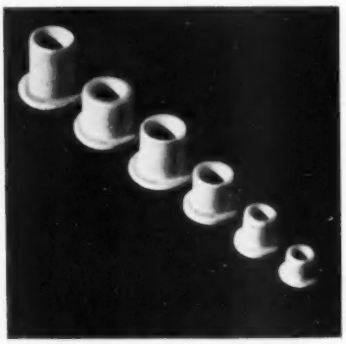
Thread-guide wear in the manufacture of synthetics *countered by* SINTOX

With the rapid advancement of man-made fibres since the war it became obvious that a far better thread guide material would have to be found, with exceptional qualities of surface smoothness, strength and chemical resistance, and in particular, resistance to abrasion.

SINTOX is an alumina ceramic which has been developed by Lodge Plugs Limited after twenty years' intensive research. SINTOX proved to be ideally suited as a thread guide material, and quickly became established in the modern textile world. Its very great hardness and strength mean that it can be used with



complete success where other materials would wear or break. Its normal velvet finish is so



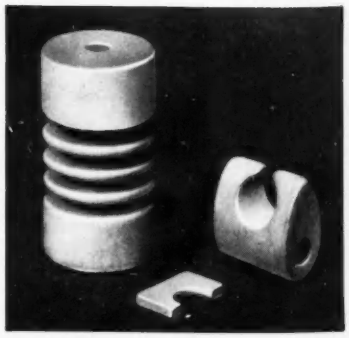
smooth that thread damage is avoided, and the very low co-efficient of friction eliminates tensioning problems.

For several years now SINTOX thread guides have been available to textile manufacturers for use where *very severe* wear problems arise. Unfortunately their expense has precluded more general use in the industry. This has been due to the elaborate and exacting process of manufacture, with high standards of quality control and inspection, coupled with the diversity of thread guide which we have produced.

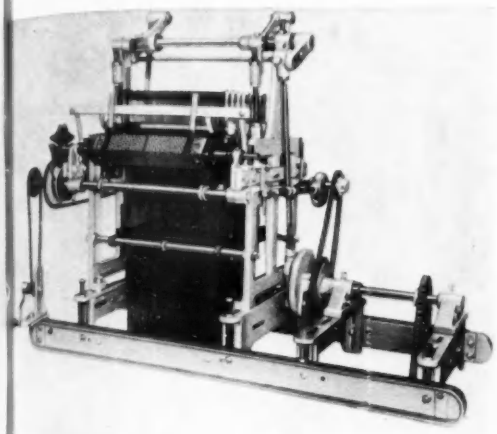
STANDARD RANGE

Now the situation has changed. From the large number of designs produced in the past we have selected a nucleus of "Standard Sintox Guides" which have been in most popular demand, and these are available *from stock* at lower prices. This brings the very real advantage of SINTOX thread guides within the reach of *every* textile manufacturer and extends their use to *all* types of yarn.

Of course, if you have a special problem SINTOX guides can still be made to your requirements at a reasonable price. Our Technical Staff are always ready to give you advice on thread guides without obligation. In any case, why not send for the "Standard Sintox Thread Guide" catalogue which is available on request from Crabtree Textile Accessories Limited, Colne, Lancs.

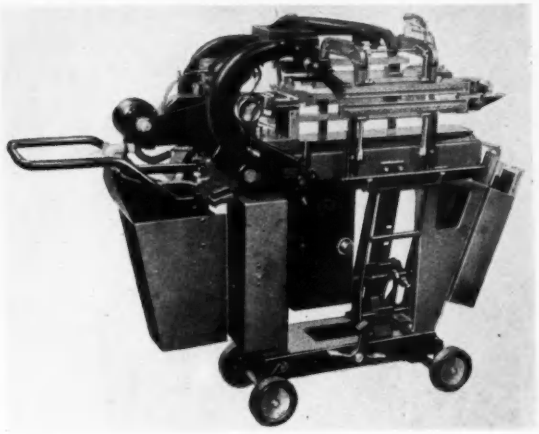


WE ARE EXHIBITING AT THE TEXTILE MACHINERY EXHIBITION VISIT OUR STAND NUMBER 1007



(left) The Dracup double-lift single cylinder coarse pitch jacquard machine.

(right) The Barber Colman portable warp-tying machine



dobbies. The machine, completely self-contained, is fully automatic in operation. Self lubricating bearings are fitted wherever practical and the machine can be supplied for floor or bench mounting. The firm's new double lift, single cylinder coarse pitch jacquard is built on precision engineering principles and incorporates numerous new features. Maximum weaving speeds are obtainable with minimum maintenance and maximum efficiency. Models are available in all standard and special sizes and it can also be supplied as double cylinder machine. A three-position machine is also shown for the high speed production of moquette fabrics.

The standard machine produces normal moquette fabrics and also fabrics with two heights of pile. By slightly modifying the driving motion the machine will produce all the new "float weave" effects currently fashionable in the moquette industry. With the one machine it is possible to cater for all the requirements of the figured moquette industry.

Other specialities include the company's fine pitch, double-lift, double cylinder jacquard machine of which many thousands are in operation throughout the world, also a new type selvedge jacquard introduced to meet the requirements of the manufacturer needing up to 24 figuring ends in the selvedge. A double lift, single cylinder selvedge jacquard on view will operate at speeds of up to 180 picks/min., according to the type and width of fabric being woven. This jacquard can be fitted to any make of loom, and has many applications other than weaving selvedges. The standard machine is available in all capacities up to 96 needles. The firm's single wilton jacquard is mounted on the Wilson and Longbottom loom, Stand 1521.

* * *

Barber and Colman Ltd., Brooklands, Sale—Stand No. 1705. Designed for operation behind the loom or beam frame, the portable warp-tying machine, Type 15 LL will tie either flat sheet or leased warps of cotton, wool, worsted, linen, mohair, silk and spun and filament yarns. Special features emphasised by the makers are compact and robust construction providing exceptionally easy handling.

The Starter Maker, also on view, is supplied as standard part equipment of the Barber-Colman spooler, and has been redesigned to provide for the magazining of Barber-Colman cheeses used with advantage as the weft supply for shuttleless looms, backwinding, etc. It is additionally highly efficient and productive for general use.

* * *

Johannes Menschner, Dulken—Stand No. 1106. A doubling, measuring cloth rolling machine, Model RW 24(56) D, on view will also demonstrate the possibility of continuous selvedge printing and length measurement on the selvedge of the fabric.

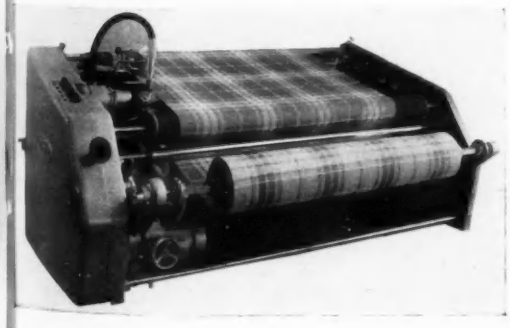
The firm also show for the first time their high production selvedge shearing machine, Type SRS, which will slit threads from one or both selvedges. Protruding threads are guided into position by an air stream set up by a fan, and the cutting is done by a rotating cylinder and a stationary knife. There is a loop opener which converts loops in the selvedge from box looms to hanging threads for trimming. A suction device removes the waste threads. U.K. agents are Geoffrey E. Macpherson (Textile Engineers) Ltd., Nottingham.

* * *

English Card Clothing Ltd., Lindley, Huddersfield—Stand No. 1202. Installed for the purpose of demonstrating the art of manufacture of all types of card clothing, three card-setting machines will run continuously throughout the exhibition. A novel show case also on view is made up of rotating panels, electrically controlled. Each panel contains a full range of samples for a specific type of textile fibre. By means of a push button control, the rotating mechanism can be halted to permit a longer and closer examination of the samples. Detailed processes used in the company's factories are also pictorially illustrated on side panels of the stand. Branches of the company are: Elijah Ashworth; C. R. Bentley; Cain Son and Greenwood; Henry Highley and Sons; Samuel Law and Sons; Joseph Sykes Bros.; Watson Bros.; John Whiteley and Sons; and Wilson and Ingham.

* * *

Pilkingtons Ltd., Heywood—Stand No. B1403. Shuttles of all types for automatic and non-automatic looms, manufactured from all the conventional hardwoods and specialities are exhibited. Visitors can see the "Duraclad" shuttles for extra wear without excessive weight, the "Durwood-Double-Life" shuttles for extreme density and hardwearing properties and the "Impregnawood," specially for weaving nylon, rayon, etc. In the range of hand-threading shuttles are the types of proved efficiency, including the "Catapult," "Rapid" and "Zip" types. They are fitted with the most suitable tongues for the varying packages and incorporate different types of tongue raising motions, including the "Raze-Eze" device. Various tensioning devices are fitted in the shuttles, and there are shuttles complete with non-static eyes. Picking sticks for overpick and underpick looms made from seasoned hickory and "Sperlowood" laminated material are shown, also a full range of accessories, including bobbins, cones, pirns, loom box backs, guides, etc.



(left) The Menschner selvedge shearing machine

(right) A Pilkington shuttle for Northrop loom

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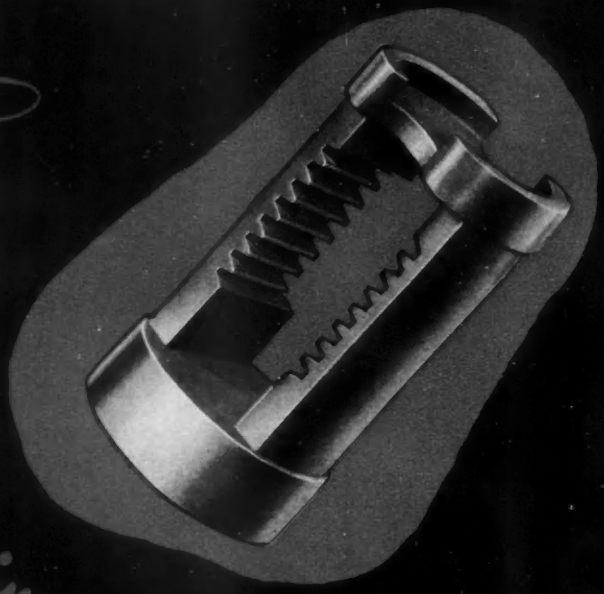

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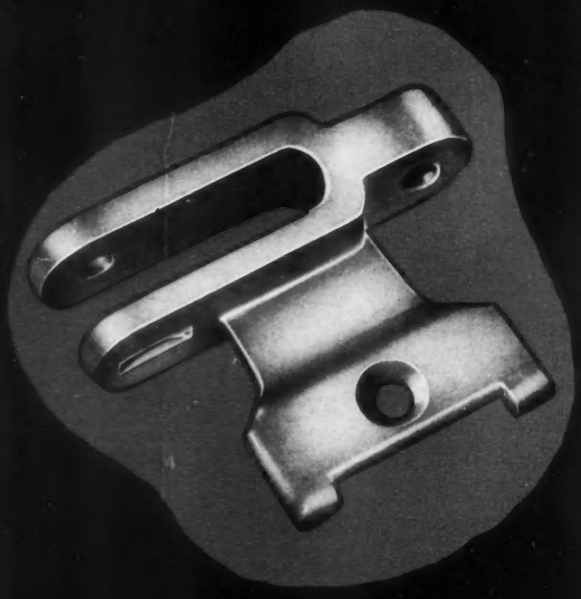

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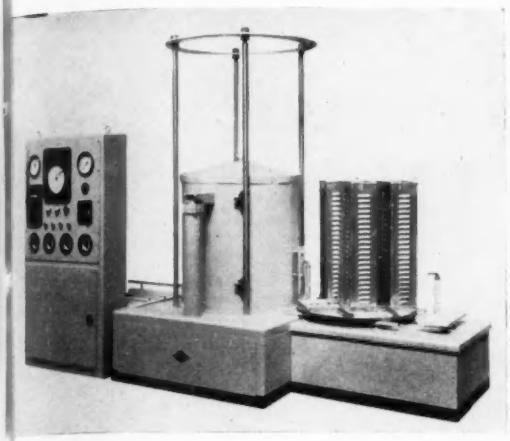
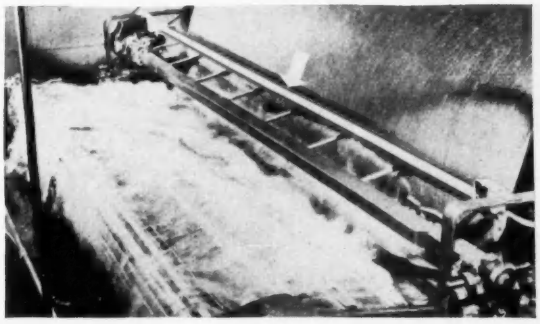


(left) The Sanderson V.B. machine for setting acrylic sliver and all types of synthetic yarns



(right) The "Simco" static eliminator on wool card

Sanderson and Co. (Textile Engineers) Ltd., Todmorden—Stand No. 1802. The firm's newest machine has much to interest visitors. It is the V.B. type which has been specially designed for setting acrylic sliver for bulking of acrylic yarns and the setting of all types of synthetic yarns. The machine is designed to process five cans of sliver in a continuous cycle. A vertical bell is lowered into position for the vacuum and steaming cycles. At the end of the cycle the bell moves upwards and the five cans are traversed outwards to a return station, and a further set of five cans move underneath the bell.

A typical processing cycle would be an initial vacuum of 25 ins. Hg.—steam for 2 mins. at 240°F.—re-evacuate for 2 mins. —steam at 240°F. for 6 to 8 mins.—final vacuum for 4 mins. The entire operation is fully automatic and can be set to repeat indefinitely on batch production. On the other hand single processing cycles can be made through a switch control.

* * *

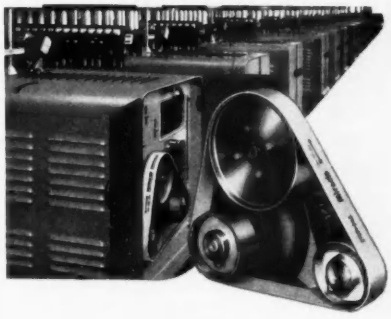
Sulzer Brothers Ltd., Winterthur, Switzerland—Stand No. 2106/2207. Two of their weaving machines, using grippers for weft insertion are in operation with working models to demonstrate the Sulzer system. One machine (130 ES 8 E) is weaving sheeting of two different widths simultaneously. This model (formerly designated TW 11/130) is especially suited for weaving cotton and spun rayon fabrics and has a total working width of 130 ins. (330 cm.). The maximum speed is 210 r.p.m. A tappet motion positively controls up to 10 shafts by means of double cams and allows a maximum repeat of 8 picks. The machine is equipped with a shaft levelling device and pick-finding mechanism.

The second machine (85 ZS 10 E 140°) formerly designated TW 11/85 ZSB, is weaving a worsted fabric. The machine inserts up to 265 picks/min. The tappet motion is built to take up to 10 shafts (repeats up to 8 picks). The two-colour unit is used either for two different colours of weft yarn or as a pick-and-pick mechanism for weft mixing. Colour repeats are up to 200 picks (or 400, 600 or 800 picks respectively, if each weft thread is repeated twice, three of four times). This type also features a shaft levelling device, pick-finding mechanism and has a useful reed width of 85 ins.

Sheridan Croxted Ltd., London—Stand No. 2708. The "Simco" static eliminator featured here is a compact piece of equipment for the elimination of static charges encountered in opening, carding, drawing and spinning, etc. processes and, probably more so with synthetic fibres. Installation is a simple matter and once installed no maintenance is required. The "Simco" has no harmful radiations, or gases, and the operating cost is negligible. The power unit, fed with any single phase a.c. supply, provides high voltage, low amperage power (not in any way dangerous) to the applicator bars. These bars ionise the air in the vicinity, and the ionised air neutralises any static that may be present. The removal of static ensures that the problems of bowing, ballooning, clinging of materials to rollers and other objects are removed and in this way the static eliminator is an important aid in maintaining maximum productive efficiency.

* * *

Ira Stephens Ltd., Ashton-u.-Lyne—Stand No. 1315. A dual-motor ringframe drive is one of the features on this stand and visitors will undoubtedly be interested in the high-speed taper cone pulley drive on view. A fast/loose drive, demonstrating the suitability of "Miraclo" and "Meteor" belting for fork action attracts attention, also the drive showing the resistance of "Miraclo" to oil. An additional drive shows resistance of



"Miraclo" to the effects of dust and fly. In addition to these working models there are examples of all types of "Miraclo" and "Meteor" belts in current production, models, photographs and illustrations with particular reference to the textile industry, and "Miraclo" condenser tapes.

A recent installation of Sulzer machines

The
BRITISH PICKER
Co. Ltd., Todmorden

Sole Manufacturers and Suppliers of

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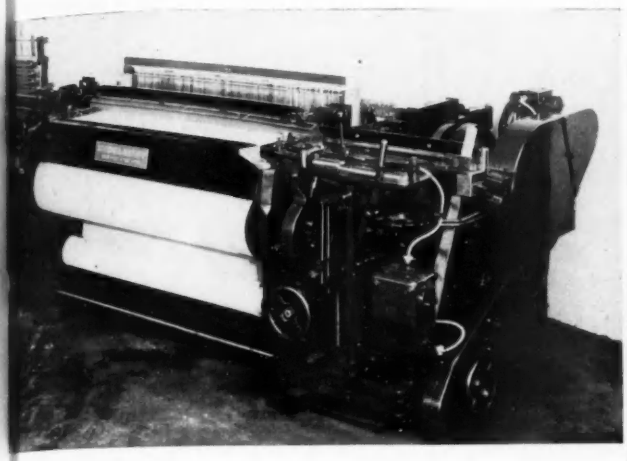
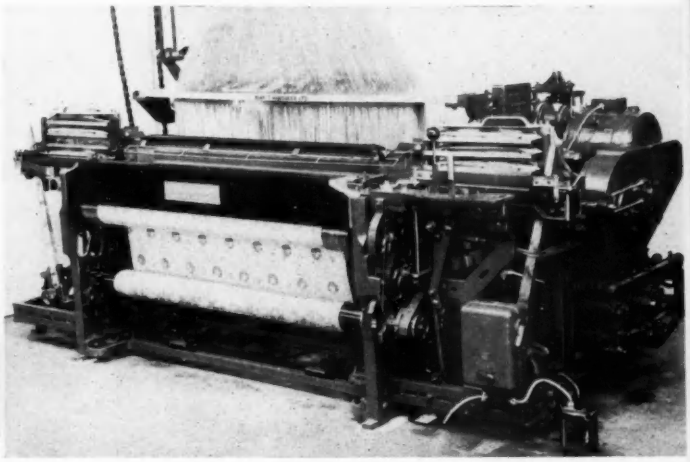
are exhibiting

A COMPLETE RANGE OF "BENKA" BRAND TEXTILE AND MECHANICAL LEATHERS





Two models on view from the range of fine looms made by Butterworth and Dickinson Ltd.

Butterworth and Dickinson Ltd., Globe Iron Works, Burnley—Stand No. 1203. Well known throughout the world this company show two examples in their latest range of looms. Many new features have been introduced and considerable attention has been devoted to small details concerned with easy maintenance, and efficient and consistent performance. One of the looms is fitted with four shuttle boxes at each side arranged to operate either together or independently with up to seven wefts. A designed jacquard furnishing fabric is being woven and the use of extra large capacity shuttles is of special interest in these conditions. A new method of box motion selective gears has been introduced and the sley arms carrying the shuttle boxes are of new design.

The second loom, constructed specially for the production of the better quality nylon and "Terylene" fabrics, is based on a wide experience in this field. A fabric with four ends and four picks forming a plain weave is shown, and the loom is fitted with underbuilt heald movements and automatic shuttle changing. Here again the use of large shuttle capacity is illustrated, being equally effective with coarse or fine wefts.

G. Durrant and Sons Ltd., Stockport —Stand No. 1416. The B.D.A. patent auto scutch on view is manufactured under licence from the Bradford Dyers' Association Ltd. Suitable for light and heavy cloths, including woollens, cottons, rayons and mixtures, it is suitable for extracting cloth from either a hydro-extractor and plaiting down, or direct from a cart and feeding to a mangle or suction slot, without the use of a floor turntable.

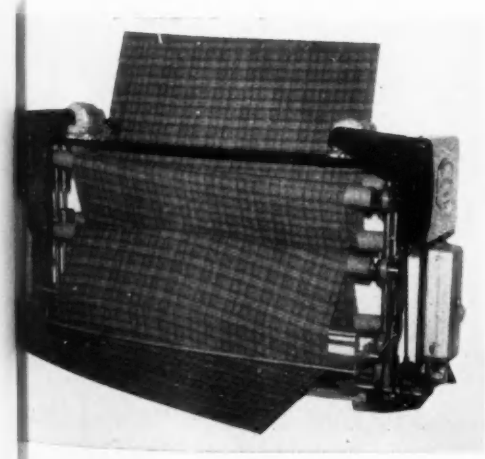
A new self-contained cloth guider head is displayed, also the firm's heavy duty surface batching machine, designed to produce good solid rolls of cloth at constant speed. It will roll any cloth especially cottons and rayons, in any desired width and has a speed of 120 yds./min., building up batches to a diameter of 4 ft., thus permitting 1,000/2,000 yds. of cloth to be rolled in a single batch.

Visitors will find much to interest them in the "Comet" cloth inspection machine, extremely valuable in the important assessment of quality control, also the new Durrant combined bowed and skewed weft straightener, a highly efficient machine for correcting skewed weft and bowed weft. A free running expander roller, suitable for cloth, film, plastic and paper is also displayed.

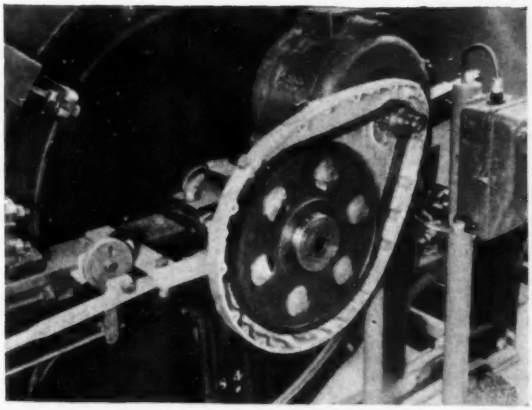
Renold Chains Ltd., Manchester—Stand No. 1305. Exhibited is a wide range of precision roller chains for main drives up to 4,000 h.p., group driving, and individual driving of machines, together with a stock range of conveying and elevating chains up to 15,000 lbs. breaking load and the corrosion-resistant Coventry Mark 5 steel roller chains (malleable replacement series). A selection of the "Anchor" range of specialised chains for the textile industry is also displayed. The compactness of the self-contained Renold card drive—one of the most highly efficient power transmission units for this purpose—is illustrated by a full size model.

* * *

Prince-Smith and Stells Ltd., Keighley and Taylor, Wordsworth and Co. Ltd., Leeds—Stand No. 1601. The "New Bradford" system of worsted drawing and spinning on view brings together two very outstanding inventions. The combination of Raper "Autoleveller" drawing and Ambler "Superdraft" spinning provides what is claimed as the shortest and most flexible system in existence for the production of level worsted yarns, either from oil-combed tops, or preblended tops of wool and man-made fibres. Four machines are exhibited: (*a*) Raper "Autoleveller" gill, (*b*) Raper "Autoleveller" draw box, (*c*) drawing finisher and



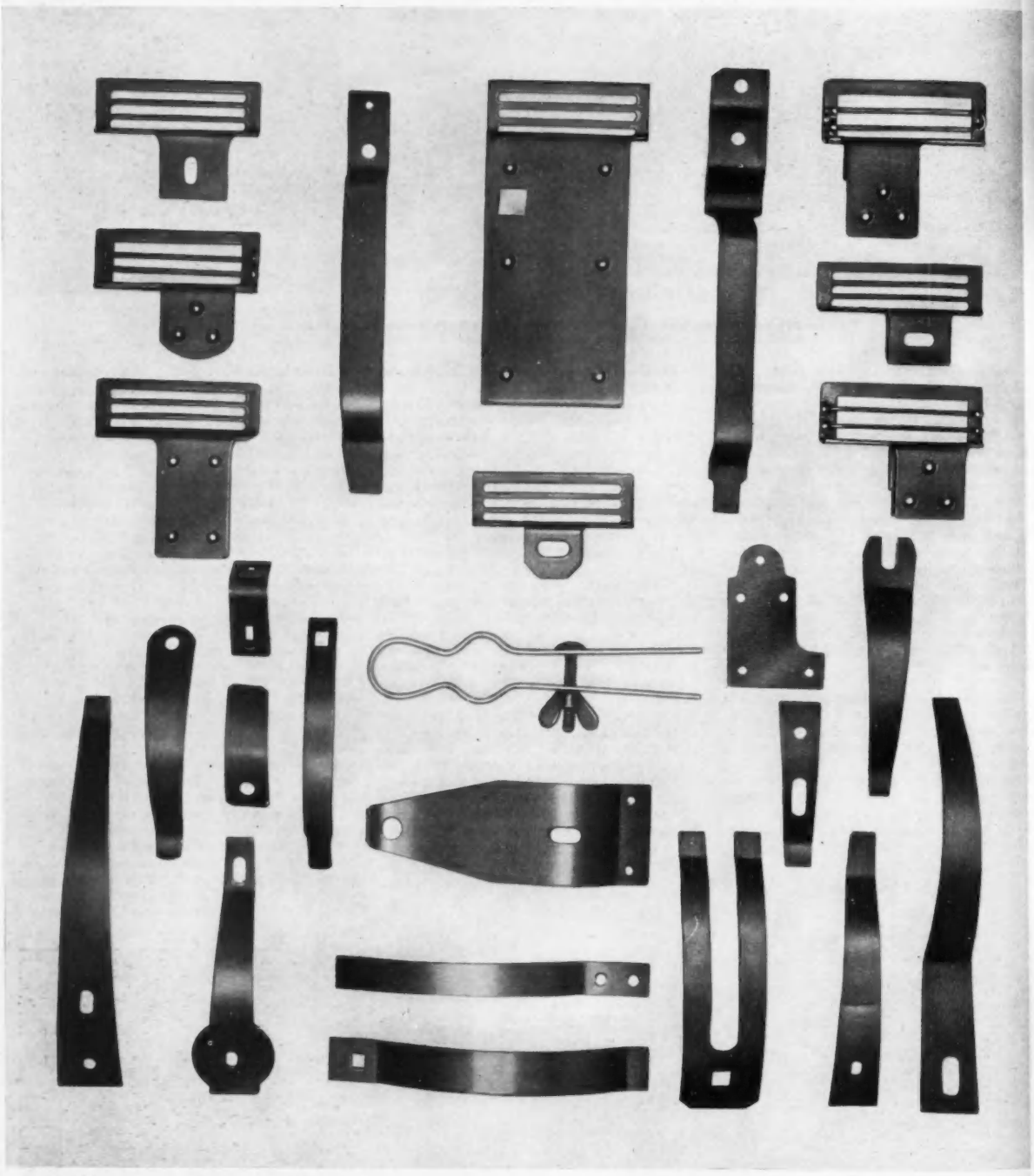
(left) The new Durrant combined bowed and skewed weft straightener



(right) Casing on card drive removed to show Renold drive, ·375 in. duplex roller chain; 20/114T wheels at 11 ins. centres

CRABTREE BROS. (WATERSIDE) LTD.

LOOM ACCESSORIES



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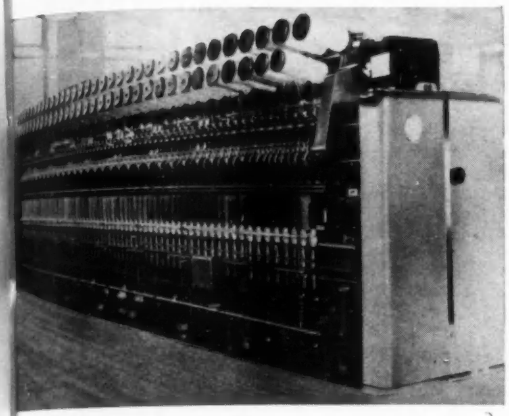
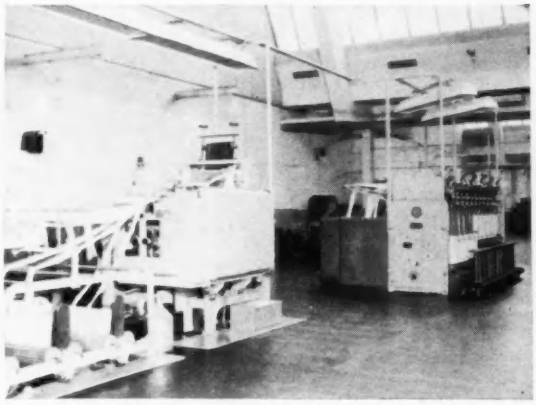


(left) "Megaflex"/A.S.D. ring spinning frame K.M.F.2 Prince-Smith and Stells Ltd.

(right) Raper "Autoleveller" intersecting gill H.R.G.1 and 10-spindle Raper "Autoleveller" drawbox K.R.D.1. Prince-Smith and Stells Ltd.



(*d*) "Megaflex"/A.S.D. ring spinning frame. A new feature of the "Autoleveller" gill is the 24 ins. round coiler can in which coiling of the sliver creates less fibre disturbance and presents a more uniform sliver to the draw box. An additional feature shown separately and applicable to gill boxes and "Speed-o-Gills" is the new spray oiler, which provides a finely atomised spray thus ensuring perfectly even oil distribution.

The Raper "Autoleveller" draw box incorporates with each spindle, a Raper "Autoleveller" unit and a Raper pressure drafter. One sliver from the "Autoleveller" gill is fed to each "Autoleveller" draw box spindle. Positively driven spindles ensure even twist. Spindle pitch is 10¼ ins. and bobbin size 14 × 7 ins.

The final operation of the "New Bradford" system drawing is a drawing finisher of open drawing type with conventional drafting zone. The six-spindle machine exhibited is completely new and the spindle pitch is 8 ins. and the bobbin size 10 × 5 ins. The machine is shown with the new detached turntable creel.

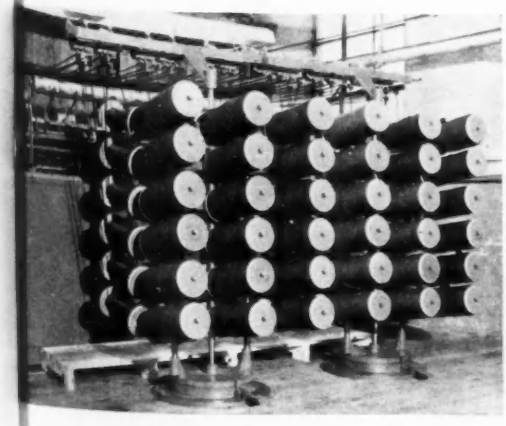
Ambler "Superdraft" spinning on the "Megaflex"/A.S.D. ring frame, Model K.M.F.2, follows the three drawing operations. Using "Superdraft," the spinner can produce from one roving weight the entire range of counts it is possible to spin from a given wool quality. The "Megaflex"/A.S.D. frame meets the present need for high speeds, maximum draft, large packages and reduced floor space. One side of the machine is producing a normal worsted yarn while on the other side a very fine count from synthetic material is being spun. The machine shown is fitted with automatic underwinding, an optional extra.

The automatic ball doffer is an important new development shown in conjunction with the "Speed-o-Gill" although equally applicable to Bradford type balling gills. The ball is built on to a permanent steel spindle, and on completion of build, the mechanism automatically removes the ball from the spindle and re-starts the machine. Another development is the F.N.F.-Prince-Smith tow-to-top converter, evolved from the well-known "Greenfield" tow cutter developed by F.N.F. Ltd. and the P.S.S. "Speed-o-Gill."

Taylor, Wordsworth and Co. Ltd. show their new Mark III backwashing machine which has stainless steel bowls and rollers in the squeezing head. Automatic hydraulic pressure and lifting is provided for the squeezing rollers. Infinitely variable speed control is available. The drying unit shown embodies two large diameter perforated drying cylinders, and is self-threading; slivers from the squeezing head after presentation to the taking-in rollers of the drying unit, need no further attention from the operative until they are delivered at the other end of the drying machine. The slivers are automatically kept in contact with the surface of the cylinders by the suction of the hot air circulation system.

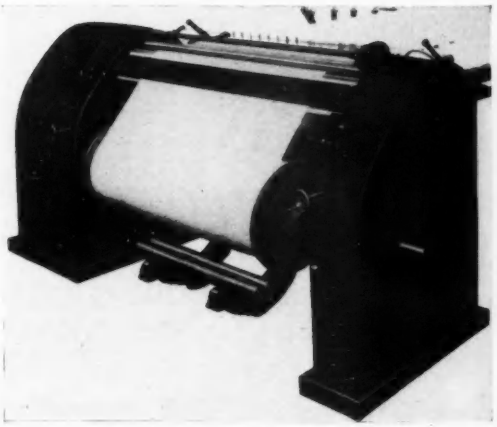
Joseph Hibbert and Co. Ltd., Darwen —Stand No. 1504. A completely new sizing unit on view for the first time comprises: Model A.4 headstock, 28 ins. dia. beam; multi-can dryer, 63 ins. on face of can; size applicator, 56 ins. double roller. The Model A.4 headstock incorporates a patented mechanical drive which provides a constant pre-determined tension throughout the build-up of the beam. The drive can be adjusted readily to any pre-determined tension, dependent on the number of ends and the count and can operate over a ratio of bare barrel diameter to full diameter of up to 1 : 5·5. It can be supplied to work with bare barrel diameters from 4 to 5 ins., 5 to 6 ins., etc. The only electrical equipment is a simple squirrel-cage type motor and associated control gear. A hydraulic variable speed gear is employed to control the speed of the machine, and provides any winding speed within the wide range of 0-100 yds./min.

Considerably enhanced in appearance and performance, the multi-can dryer on show can be readily extended to meet higher production requirements. Positive chain drive to the cans and automatic constant yarn tension control enables yarn stretch and velocity to be pre-determined to any given extent during the drying operation. The cans are stainless steel, all-welded construction, for steam pressures up to 40 lbs./sq. in. Each group of cans is equipped with independent stop valve, so that steam demand can be



(left) Detached (reversible) Halifax creel with individual electrical detectors. Prince-Smith and Stells Ltd.

(right) The new sizing unit, Model A4 headstock (Joseph Hibbert)



STAND 1416

- BOW AND SKEW WEFT STRAIGHTENER
- NEW AUTOMATIC CLOTH GUIDERS
- CLOTH INSPECTION MACHINERY
- CLOTH EXPANDER UNITS
- BDA PATENT AUTO-SCUTCH
- DURRANT BRRA AUTOMATIC WEFT STRAIGHTENER

FOR CLOTH HANDLING CLOTH CONTROL SEE

G. DURRANT and SONS LIMITED

SPECIALISTS IN TEXTILE FINISHING MACHINERY

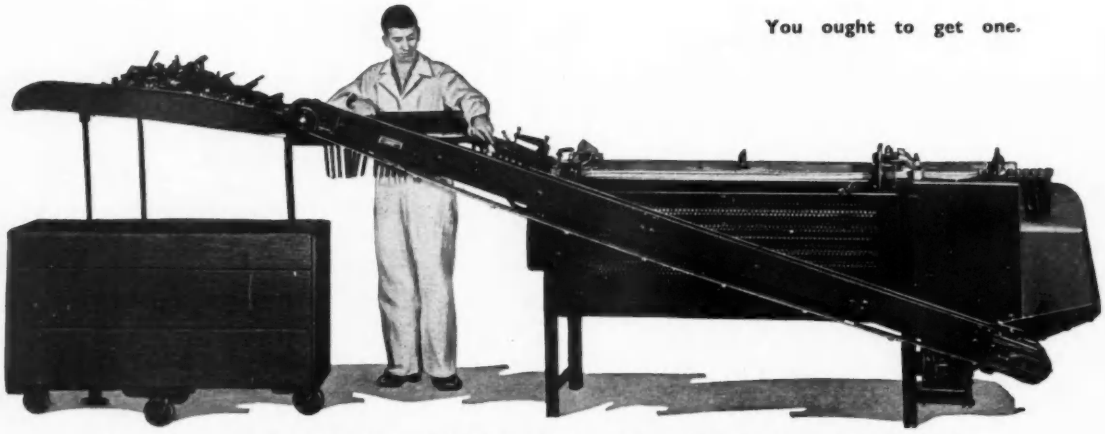
TELEPHONE STOckport 2777 **BURY STREET, STOCKPORT**

WHY RISK IT ?

ALL MECHANICAL PIRN STRIPPERS—EVEN IF CAREFULLY MAINTAINED AND OPERATED—TEND TO HARM PIRNS. DAMAGED PIRNS RESULT IN FAULTY CLOTH.

THE TERRELL PNEUMATIC PIRN STRIPPER CANNOT HARM PIRNS, BECAUSE ONLY COMPRESSED AIR TOUCHES THE BARRELS. IT IS VERSATILE, EASY TO OPERATE, AND MAINTENANCE COSTS ARE NEXT TO NOTHING.

You ought to get one.

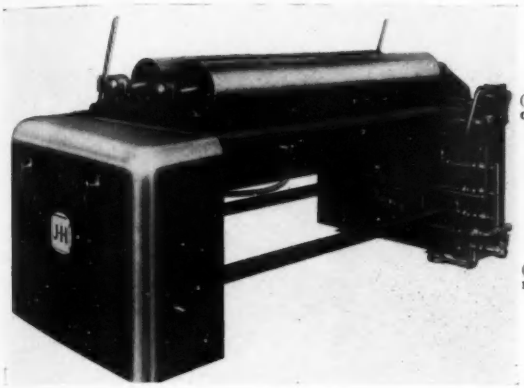


Made by **THE TERRELL MACHINE CO. INC., Charlotte, N.C., U.S.A.**

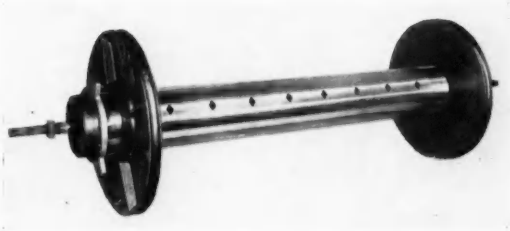
Sold by **GEO. THOMAS & CO. LTD., Parsonage Lane, Manchester 3.**

Sole Agents in Great Britain and many European countries, etc.

N.B. A simplified model is available for the small mill and a semi-automatic installation is available for the large mill.



(left) Size applicator on new Hibbert sizing unit



(right) One from the range of Sterling light alloy beams

adjusted readily to warp, and speed requirements. "Non-Stik" covering to the guide roller and first cans in contact with the yarns prevents adhesion of size to the surfaces, and obviates all consequent operating difficulties. Individual temperature control is available.

The two basic designs of the size applicator comprise the single roller and double roller applicators. Hydraulic loading on the squeeze rolls can be provided in any combination. Neatness and cleanliness of design, simplicity of operation and maintenance, particularly characterizes this size applicator. A low capacity container permits a quick turnover of starch products and consequently dispenses with the need for recirculation. Size level is controlled by means of a sensitized electrode. Rubber covered squeeze rolls are optional.

* * *

John Dalglish and Sons Ltd., Thornliebank, Glasgow—Stand No. 2601. The dominating feature here is a complete "Dart" combined pin clip stenter and heat setting machine with entry arrangement to enable it to handle woven and tricot knitted fabrics and nets. New from beginning to end it is a product of the combined design teams of John Dalglish and Sons Ltd., and Artos Maschinenbau Dr. Ing. Meier-Windhorst K.G., Hamburg. It features the Dalglish tricot entry frame, primary and secondary uncurlers, patent electronic guiders and overfeed, with optional overdrive on either selvedge. The combined pin and clip (patent applied for) is a new design having a light alloy body automatic stenter clip of 5 ins. nominal length, mounted on a special roller chain base, with sintered bronze bearing pads. The pin/clip changeover mechanism only has two moving parts and the pin plate is locked in both operative and non-operative positions without springs, catches or screws. The combined drying and high temperature heat setting housing has an air circuit of advanced design with circular air nozzles above and below the fabric supplied from a single fan with a special two-speed driving motor.

A new design of baker or polymerising machine will be on show incorporating new principles of storage of continuously running cloth. This machine will hold a maximum of 500 yds. of fabric whilst running at speeds up to 80 yds./min. Another exhibit incorporates a full size "Proctor" drying conveyor suitable for wool stock, rags, cotton linters, synthetic fibres in tow or staple form and similar loose material.

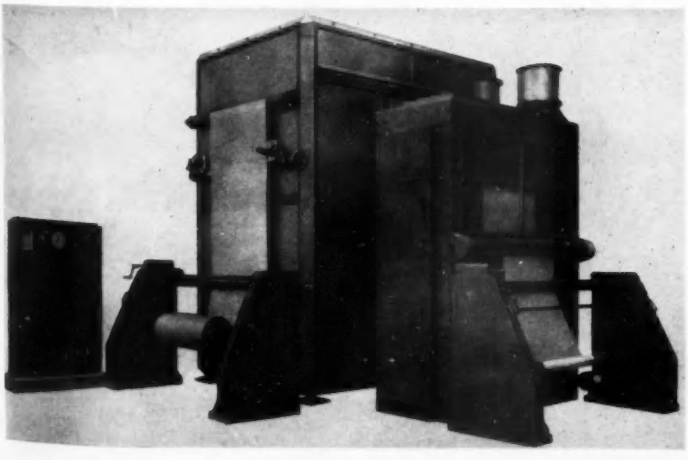
* * *

Sterling Metals Ltd., Nuneaton—Stand No. 1621. Dynamically balanced high speed warping and weaving beams, also backing drums in light alloys are amongst many of the features exhibited. Section warp beams, adjustable flange beams and loose flanges are included together with some jacquard cylinders and a range of the larger types of bobbins—all precision made to very fine limits from light alloys.

* * *

Gordon Warin Ltd., Healey Lane, Bingley—Stand No. 2312. Complete with automatic lift for inserting and withdrawing warps, warp re-beaming machine exhibited can be used in conjunction with a warp tying machine or as a twisting frame, or for looming and healding. It is fitted with a load equalising and load indicating variable speed unit with speed indicator. The hydraulic beam truck on view is strongly constructed to hold up to 15 cwts., and the movable turntable is covered with ½ in. sponge rubber swivel castors. It has a foot-operated pedal for raising, and foot valve release for lowering. A constant speed piece rolling and inspection machine, incorporating illuminated panel for single width cloth and measuring indicator, is also shown. This will roll on tubes, boards, or on collapsible bars.

Shuttle rectifying machines, for all type of shuttles, can be seen complete with buffing and grinding wheels for shuttle tips, etc. All faces of the shuttles can be trimmed with accuracy and simplicity. Grooving cutters are supplied for the various grooves necessary. Shuttles can be trimmed into sets with perfect alignment. Patented weft forks—twin pattern and single type—suitable for most types of looms, including continental makes, are displayed.



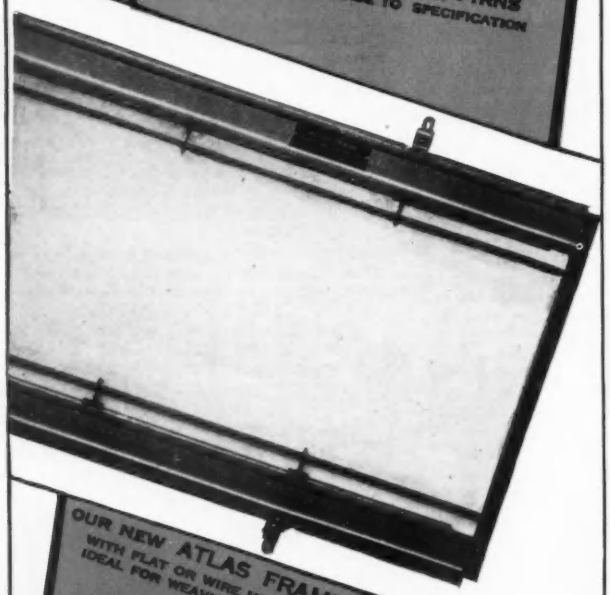
(left) The new baker or polymerising machine shown by John Dalglish

(right) Shuttle rectifying machines (above) bench model and (below) comprehensive type

TEXTILE ACCESSORIES

STAND 1613

BOBBINS, TUBES, CONES, PIRNS
OF EVERY TYPE MADE TO SPECIFICATION



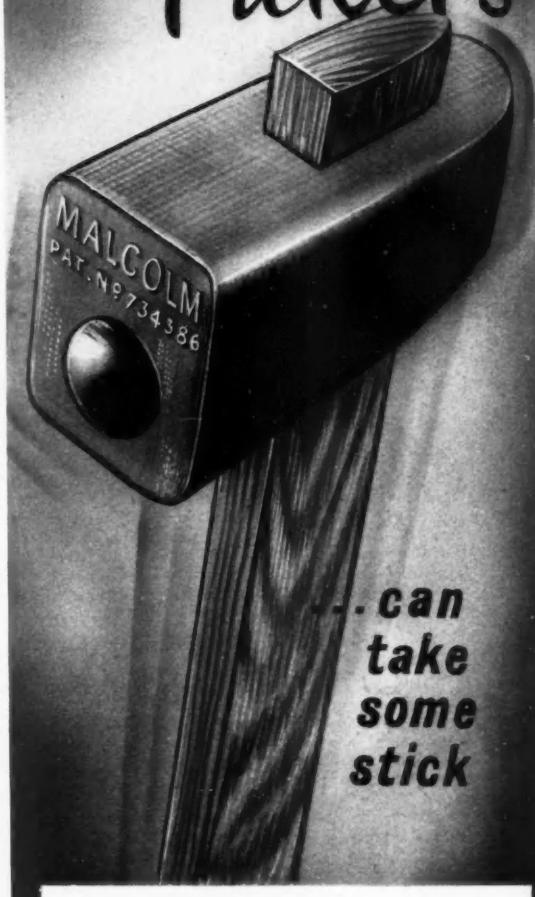
OUR NEW ATLAS FRAMES
WITH FLAT OR WIRE HEALDS ARE
IDEAL FOR WEAVING ALL FABRICS

TRULAY EXPANDING COMBS
FOR AN EVEN SHEET OF YARN

JONES
TEXTILATIES
LTD.
BLACKBURN

MALCOLM

RUBBER Pickers



. . . can take some stick

- MALCOLM Rubber Pickers are made of synthetic rubber and consequently leave no deposit on shuttle tip or box sides.
- Impervious to oil they provide maximum cushion in the stick hole—thus increasing the life of the picking stick.
- The high degree of resilience at shuttle point ensures a perfect throw to the shuttle during the Picker's life which is considerably lengthened by the extreme toughness of the material.

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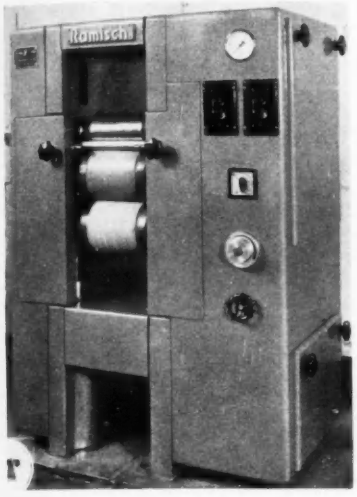


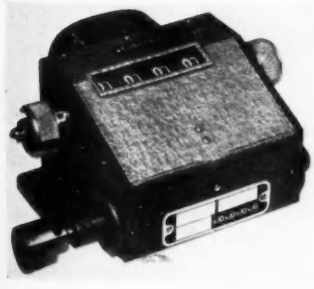
Ramisch small 3-bowl calender

Dr. Ramisch and Co., Krefeld—Stand No. 1106. Specialist manufacturers of calenders, who show a small 3-bowl calender, Type RK36P, for rolling and glazing. The width of rollers is 8 ins. and the disposition: steel roller 4 ins. dia., cotton bowl 8 ins. dia., cotton bowl 8 ins. dia. The machine has a V-belt drive, pneumatic pressure system for 6 tons, and a working speed of 9 yds./min. Not only is this a laboratory calender but it is useful in dyeing and finishing plants for constant spot checking of working conditions; for example, quick tests of variation of existing finishing preparations and quick matching checks of dried and calendered specimens against standards. It is also valuable for the building up of sample ranges and processing of small lots.

Dr. Ramisch and Co. have developed a special schreiner-finish and embossing calender for nylon tricot and a comprehensive range of samples processed on this can be inspected on the stand. U.K. agents are Geoffrey E. Macpherson (Textile Engineers) Ltd., Nottingham.

* * *

George Orme and Co., Oldham—Stand No. 1609, have a comprehensive display of counters and counting instruments for all types of textile machinery. This impressive range of products includes pick and hank indicators fitted with continuous registration, or reset number wheels for 1, 2 or 3 shift working. A special display is shown of the extended range of electro mechanical length control counters showing spinning frame and loom cut meter application. Latest development projects in the high speed pre-determining field, along with precision regulating and pressure control equipment will complete the display.



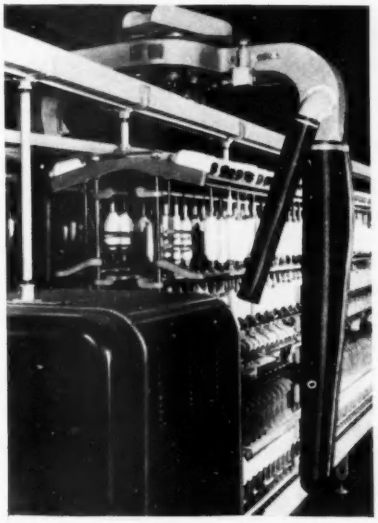
George Orme and Co., The S.U. Predetermining Counter

Orme pattern indicator fitted with totaliser

* * *

Parks-Cramer (Great Britain) Ltd., Oldham—Stand No. 1503. The new CTG combined frame and ceiling cleaning unit, developed from the already popular CTF 5B frame cleaner and CTR 7 ceiling cleaner is shown in operation on Platt's MR 3 ringframe. The new unit retains the original Parks-Cramer features such as underframe sleeves and revolving updraught air distributor. There is, however, now only one unit on the track to accomplish both ceiling and frame cleaning.

The motor drives a dual purpose fan and the air stream is so divided, that the areas above the machines, as well as the machines each receive the correct amount of air at the most suitable velocity for thorough cleaning. Other departments are, of course, amply catered for by the already well-known range of existing Parks-Cramer units.



The latest Parks-Cramer travelling cleaner unit

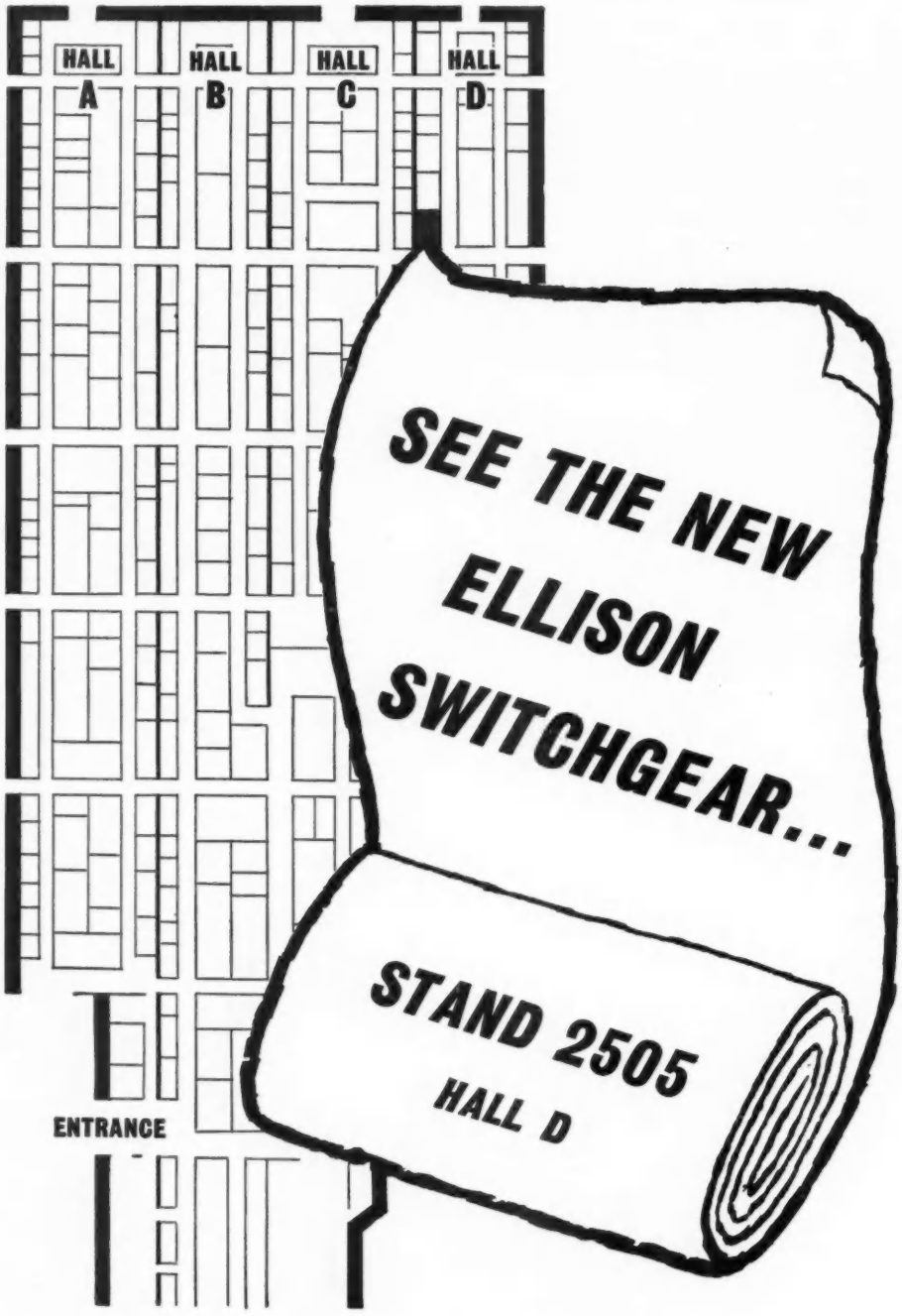
This new unit using the Parks-Cramer heavy duty track system, can also be installed on existing circuits, provided these be arranged for the use of units with underframe sleeves. A fitment for the CTG general purpose unit can be supplied which reduces air velocity when the unit reaches the end of a machine, or crosses alleyways.

* * *

Light Alloy Construction Ltd., Darlington—Stand No. 2508. An entirely new range of "Lacon" light alloy containers especially designed for the textile industry, are on view on this stand. They are manufactured from heat-treated light alloy which is further toughened by heat precipitation ageing. They are clean to handle and easy to keep clean. "Lacontainers," it is stated do not "mark off" and have no soft surface to absorb dirt or easily scratch. Costing little more than wicker skips, the manufacturers point out that they last four times longer, and save two-thirds on storage space as they allow rigid stacking, with or without standard pallets. They can be transported by stacker-trucks, and become integrated into mechanised production and bin storage. They are fire resistant and obviate the snagging of yarn.

* * *

Maschinenfabrik Oskar Fischer, Rottenburg (Neckar)—Stand No. 1106. The three warp tying machines on view include the Model ADI which knots from lease to lease and is particularly suited for woollen and worsted yarns of all counts, also coarse folded cotton yarns, linen and jute, which are tied without any adjustment of the machine setting. Model ADI-S also knots from lease to lease, but

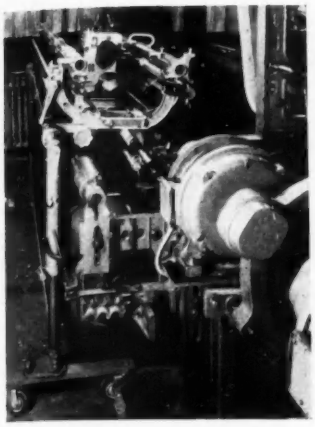


AT THE TEXTILE MACHINERY & ACCESSORIES EXHIBITION
BELLE VUE, MANCHESTER OCT. 15—25th, 1958

GEORGE ELLISON LIMITED BIRMINGHAM ENGLAND

Continuing a Tradition

799



The latest Poege knotting machine

which is particularly well suited for silk, rayon and the new synthetic yarns, down to 10 den. The Poege Universal 1958 model can be used for all kinds of knotting without exchanging any attachment and can be used for all yarns of the finest silk to 4s metric wool, with or without a lease. This machine is particularly suitable for extremely dense warps and it has a flat detector for patent warps. These machines have been designed so that they can be used inside or behind a loom. It is now possible to use them in the most cramped position in the weaving shed by utilising mobile stands adjustable in height. U.K. agents are Geoffrey E. Macpherson (Textile Engineers) Ltd., Nottingham.

* * *

F. Uttley and Son Ltd., Prospect Street Works, Huddersfield—Stand No. 1317. An important feature of this display is the "Bankbottom" automatic horizontal baling press for botany and Calcutta jute bales. This press packs wool, waste, rags, skins, etc., is fully mobile and claimed to be the lowest priced machine of its type. For the benefit of overseas visitors there is colour film showing the operation of the press, with sound track in French, German and Italian. A selection from the company's wide range of non-automatic woollen and worsted bobbins, automatic loom bobbins, bobbins for the cotton and silk industries, pirns, etc., is available for inspection.

William Bodden and Son Ltd., Hargreaves Works, Oldham—Stand No. 1422. A comprehensive range of roller bearing, needle bearing and plain bearing spinning and doubling spindles will interest visitors to this stand.

Other specialities include speed frame spindles and flyers, together with the heavy package presser now in extensive use; bobbin and spindle wheels and other accessories, and a range of small castings from the firm's foundry.

A feature of the display is a patent weft skewer for automatic looms designed to enable manufacturers to place direct spun weft on Welsh hat tubes direct into automatic looms. The advantage claimed for this method is the saving of rewinding costs. Each tube is located in exactly the same position on the skewer as its neighbour thus enabling the weft feeler to feel in the same position for each change and the waste residue is reduced to a minimum. A patent weft feeler for automatic looms exhibited has been designed to work in conjunction with the above weft skewer. The feeler is set at a pre-determined distance to work on the diameter of the pirn and immediately this position is reached the change takes place automatically. The feeler is adjustable for various counts of yarn.

Exhibited for the first time is the "New World" spindle, manufactured under licence from Saco-Lowell Shops, U.S.A. The spindle blade is stationary, being securely fastened to the spindle rail and held in position central with the ring by a simple but effective anchorage which serves as a means of damping out vibration and also makes the adjustment of the spindle to the ring, or plumbing, a simple operation. This spindle requires no oiling. The bearings are grease packed and no lubrication service is necessary for at least four years. Mill reports are said to show that these spindles consume less power than others under comparable conditions.

* * *

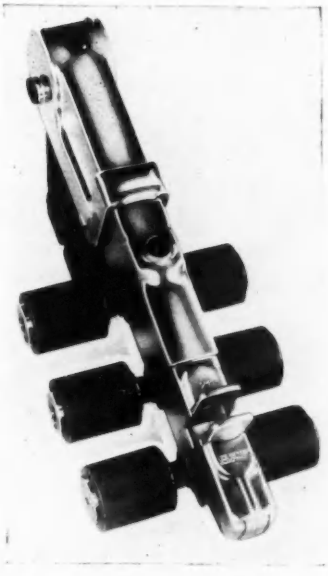
Skefko Ball Bearing Co. Ltd., Luton—Stand No. 2011. Many highly specialised textile accessories as well as examples of a wide range of ball and roller bearings and power transmission equipment are on view. The comprehensive display of ball and roller bearing power transmission equipment includes plummer blocks, rigid housings and flanged units. The roller bearing spindle insert is demonstrated in various types. These include the original

Bodden weft skewer for automatic looms, also the "New World" spindle

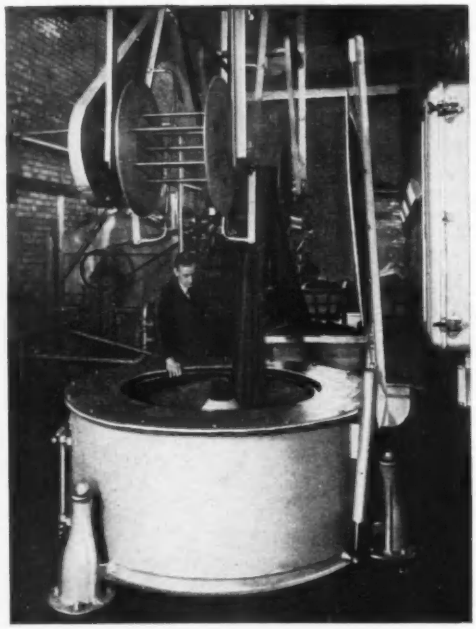
standard type designed for spinning frames, which is available in two sizes; the brake ring type, which is a development of the original design and incorporates an improved damping system; it is particularly suitable for doubling spindles. A third type, the conical contact unit has an external damping system suited to the conditions obtaining in uptwisting machines. To meet the demands for higher speeds and larger packages, a new SKF insert in which damping is effected by a coiled plate spring has been developed.

Higher drafts call for improved regularity of all processing stages and SKF

The "Bankbottom" automatic horizontal baling press (F. Uttley and Son)



Pendulum weighting arm with top weighting rollers (Skefko Ball Bearing Co. Ltd.)



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Correct BROADBENT EXTRACTION solves textile drying problems economically and efficiently, fuel costs are reduced and all materials are dried to a uniform moisture content without damage—even to the most delicate fabrics.

The Type 4(28) Extractor illustrated, powered by a direct coupled Broadbent motor specially designed for extraction duties, combines rapid acceleration with low running costs and is available in three sizes 48″ (1,220 mm.), 60″ (1,524 mm.) and 72″ (1,829 mm.) basket diameters, supplied in suitable constructional materials.

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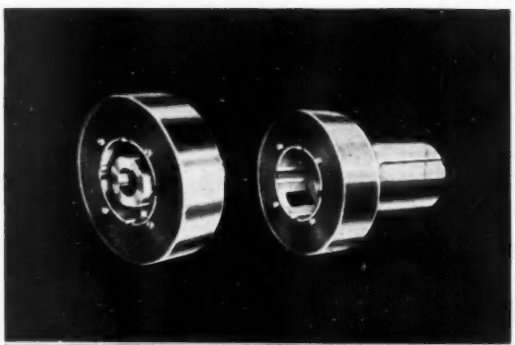
CENTRIFUGAL CLUTCHES

Give smooth controlled transmission automatically and by allowing the motor to start under no-load conditions dispense with expensive starting equipment. The gradual engagement eliminates broken ends and the bonded shoe linings have three times the life of riveted or screwed-on linings.



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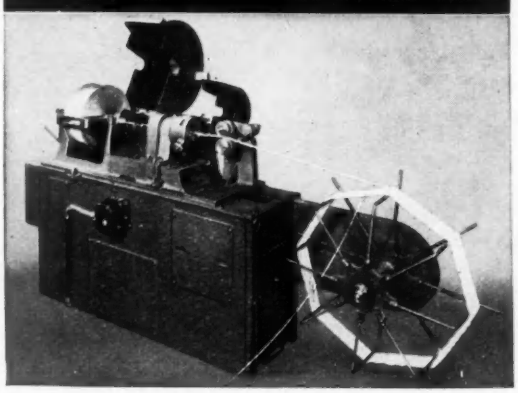
Versatile automatic Broadbent Yarn Curling replaces laborious hand curling with economical uniform production.

Many novel and interesting textures for modern textiles and interior furnishings are easily produced and minimum floor space is occupied.



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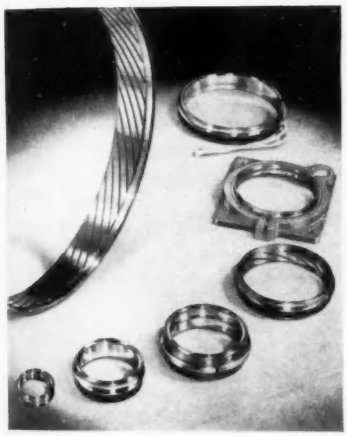
roller bearing top weighting rollers for drawframes, speedframes and ring-frames are on show. The reduced friction resulting from the use of this equipment ensures improved regularity of yarn. In the same way weaving is improved and frequent re-oiling is eliminated by the use of SKF ball and roller bearing accessories such as treadle rollers, heald sheaves, picking bowls, etc. shown on the stand.

Other exhibits include cam followers, or heart cam bowls for lifting motion, belt fork rollers for various uses and the SKF doffer comb box.

* * *

Eadie Bros. and Co. Ltd., Manchester —Stand No. 1615. A representative range of products includes various styles of steel spinning rings, twisting rings and speciality twisting or doubling rings for which the company enjoy a world-wide reputation. The firm's rings are used for spinning or twisting all natural fibres and man-made filaments, such as cotton, worsted, woollen,



silk, rayon, nylon "Terylene," hemp, flax, ramie, jute, paper, asbestos, glass, hair, etc. Technical advice and service are at the disposal of visitors on the choice of correct styles and types of ring travellers. The latest styles in nylon travellers for handling of yarns like sewing cottons, tyre cords, twines, etc., can be inspected.

* * *

Benker Co. Ltd.—Stand No. 1301. A subsidiary of British Picker Co. Ltd. producing every type of textile and mechanical leather for all makes of looms. Red chrome picking bands and lug straps, made from specially tanned buffalo hides, combine high tensile strength with minimum stretch. The list of products includes all types of picking bands, tuggers, belting, check strapping, lug straps, connectors, buffers, dry hairy and rubber check straps, heald straps, streamer leathers, dobby leathers, check ends, leather pickers, and any other leather or rubber loom accessories.

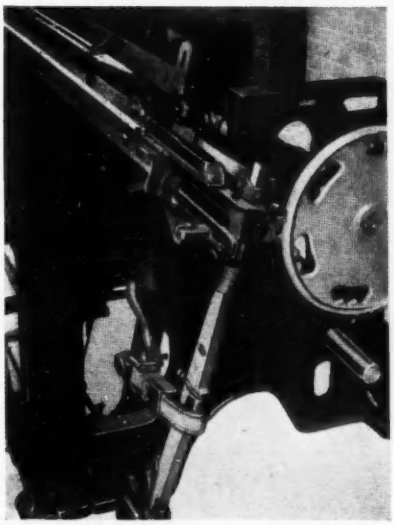
* * *

Hordern-Richmond Ltd., Gloucester —Stand No. 1901. More than 100 different types of loom picking sticks are on show and make a specially attractive feature. These picking sticks are made for every type of loom from "Hydulignum" and "Parmali" densified wood laminates. Other items in densified wood laminates include a complete sley and many smaller components such as swells, raceboards and shuttles. A feature is also made of densified wood silent gears and these are demonstrated on a working model headstock. The part that newer materials can play in the textile industry is aptly illustrated in "Permaglass" glass fibre reinforced materials and "Permaflon" processed P.T.F.E.

* * *

Carding Specialists Co. Ltd., Mirfield—Stand No. 2202. A carding machine built on the roller trains system is on view. This comprises five swifts in the space of one conventional swift and doffer. Each swift has one "first" worker, the three last swifts have an additional returning worker each as well. The train of swifts and the train of worker rollers are independently driven and their speeds can be modified. Quality and quantity of production can be easily controlled by operator. The firm manufactures full carding sets composed of two or three units, similar to the exhibited scribbler, to suit any requirement of the trade.

Another feature of the display is a standard "Crosrol" web purifier, for elimination of burrs, shives, hard skin, thread and other impurities from the carded web. The standard and heavy-weight web purifiers are both renowned and each is a sturdy precision machine that takes care of the carded web until safely deposited on the intermediate feed-lattice. The "Crosrol" cotton web purifier is seen attached to a revolving cotton flat card, but it can be adapted to any cotton card. This is a sturdy precision machine that eliminates seed and dirt from cotton and reduces



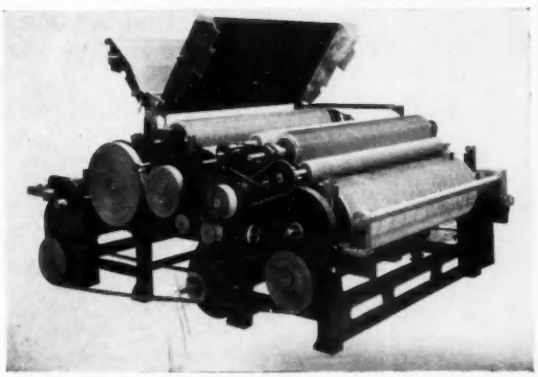
Northrop automatic for operational testing of "Hy-du-lignum" accessories

nep formation. The cloth woven or knitted from treated fibres has a better appearance and the firm state that the demand for this machine—introduced only recently—is so overwhelming that they are working day and night to satisfy it.

* * *

Hunt and Moscrop Ltd.—Stand No. 2208. The Kusters-Hunt patent "swimming roller" displayed here fitted to a three-bowl padding mangle, is so named because it virtually floats on a pressure oil cushion and gives a highly efficient and uniform nip irrespective of the load applied. Design features include a tubular cylinder in stainless steel or alternatively a steel tube covered with ebonite or rubber with a honed bore and fixed central non-rotating mandrel around which the tubular steel shell rotates. Because the cylinder bore is slightly larger than the outside diameter of the mandrel, and annular space is formed and this is divided into two compartments by two axially opposed longitudinal sealing strips. The latter fit into the mandrel and press lightly against the smooth bore of the rotating steel cylinder. Each chamber is sealed at both ends of the roller. When oil is pumped into the under semi-circular space formed between the fixed central non-rotating

(left) Three from the range of "Benka" textile leather specialities



(right) Carding machine built on the roller trains system by Carding Specialists Co. Ltd.

Tomlinsons of Rochdale

look forward to meeting their many friends in the Textile Industry on

STAND 1505

They are again pleased to announce the exhibition and demonstration of a completely new range of machines both

DRYING AND RAISING

There will be

THE 36/AZ RAISING MACHINE

This is the natural successor to the now world famous **AUTO ZERO**

IN VERTICAL TANDEMISATION

with this will be the

METAZEL RAISING MACHINE

on which **FOR THE FIRST TIME VARIABLE RAISING ENERGY IS APPLIED TO THE TEAZLE RAISING MACHINE — FROM ZERO TO A CONTROLLED MAXIMUM.**

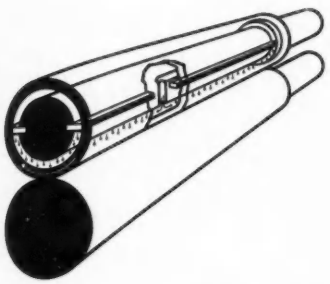
Also on display will be the

DRYDAPTA DRYING MACHINE

This is a completely new approach to drying machine construction and embodies many of the ideas that have made the **TOMLINSON STENTER ACCELERATOR** *so successful such as* **THE SEELHEET INSULATED ENCLOSURE.**

In the **BONDED FABRIC INDUSTRY TOMLINSONS** *have been* **ENERGETIC PIONEERS** *and already have a wide range of equipment to offer including a range of* **IMPREGNATORS** *one of which will be on view.*

AS MEMBERS OF THE FLUID BED MANUFACTURERS ASSOCIATION THEY WILL ALSO BE IN ATTENDANCE ON STAND 1607



The Kusters-Hunt patent swimming roller

mandrel and the tubular steel shell, the result is a hydraulically charged roller floating on oil. The "swimming roller" can be made smaller in diameter than the conventional journaled roller. This reduces the line of contact and is said to give a substantially higher specific pressure for a given load.

Equally novel and shown for the first time is the patent Kusters-Hunt "aqua-Roll," designed for water-mangling or squeezing of fabrics. The conventional cluster of rolls used on the original Kusters' water mangle, has been replaced by a flexible 4¾ ins. dia. bottom Perlon roller, borne on a water cushion under pressure, and a 12 ins. dia. top bowl of conventional design. Air and water are pumped in together to create a floating roll. Tests have shown that the "aqua-Roll" can deal with both thick and thin materials at one time and with an equal water expression.

Electronic control for the damping unit is now fitted to the company's well-known patent "Mist" spray damping machine. A completely re-designed version of this machine is shown in which the operator has only to dial-set the required moisture content and the electronic mechanism automatically controls the work of the damping unit, irrespective of the running speed. Built on compact, modern lines, the new model provides a saving in floor space. Another point of interest is the use of pneumatics to the nip which has a patented "thin skin" stainless steel bowl.

* * *

J. T. Hardaker Ltd., Bradford—Stand No. 1519. A new 1320 double lift, double cylinder Vincenzi can be seen mounted over a Hattersley loom, weaving figured furnishing fabric, also a new design of 12-colour axminster jacquard mounted over a Crabtree gripper loom. This type of axminster jacquard has not previously been shown at any exhibition. However, Hardakers have a number of machines working successfully and ranging from 3/4 to 16/4 widths. The drive to the 12-colour machine is transmitted by either chain or vertical shaft from one end of the loom to the main shaft of the jacquard, on which are fixed cams operating the various motions, these being the cylinder presentation, press frame, main lift and dabbing board motions. The needle mechanism is in independent units, each representing 2/4-in. width, which can easily be removed from the jacquard for maintainance. The cards required for operating a selection on the 12-colour jacquard have a hole punched where selection is needed as opposed to the cards for the 8-colour jacquard where holes are punched for every needle except the one selected.

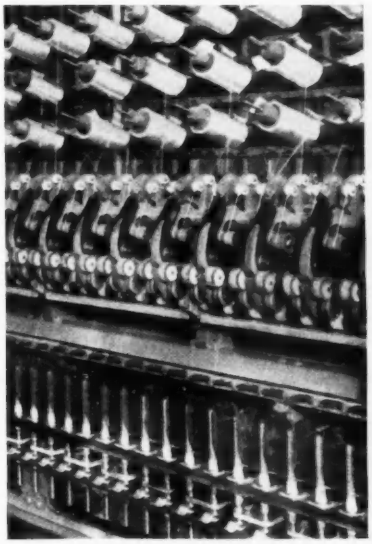
The company also make a 16-colour, endless paper axminster jacquard (not on show) which is chain driven from the loom to a main shaft and includes cam motions to operate each mechanism. To obtain selection, vertical suspender needles are lowered on to a card, where, if a blank is present the needles are prevented from falling, but if there is a hole in the card, which would represent a colour selection, the needles drop to their lowest position. As the horizontal poker needles are supported at one end by the suspender needles, they will be either held above, or drop level with the press bars. The press bars then move in and press the needles which have been allowed to drop on to further spring-loaded pokers, which in turn push out corresponding pegs contained in the vertical selectors; the protruding ends of the pegs are then in the path of the lifting bar and are picked up at their various levels by it. The selectors having been lifted to their chosen heights, remain stationary until the gripper process in the loom is complete whereupon the lifting bar descends and allows them to fall into their bottom position at which point all the pegs are returned to their original positions ready for a new selection.

* * *

V. and E. Plastics Ltd., Macclesfield—Stand No. 2315. An interesting development in the use of plastics for the textile industry is displayed here. The plastic king spools on view are made of toughened polystyrene to withstand normal abuse in production, handling and transit. These spools are used in large numbers for winding "Terylene," nylon and other yarns, they can be used repeatedly with no loss of efficiency. In addition to other qualities these plastic king spools are dimensionally stable and have been specially designed to stack one above the other, combining the twin advantages of space saving and easy storage. The manufacturers produce them in a range of brilliant colours and they can be printed in contrast with the customer's name. Other items exhibited are plastic bobbin caps, cylinder covers and other accessories for the textile industry.

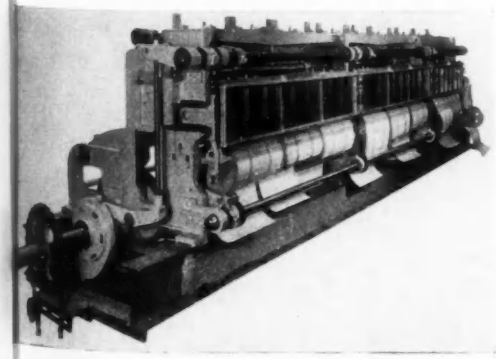
* * *

Societe de Constructions Mecaniques de Stains, Paris, France—Stand No. 1702. The main feature on here, of course, is the direct spinning machine K.11.C. for the direct spinning (tow-to-yarn) of the various types of man-made fibres. This new development in direct spinning is claimed to produce yarns of exceptional uniformity and cleanliness, also that the mechanical strength of the yarn allows a high weaving efficiency due to the small number of breakages.

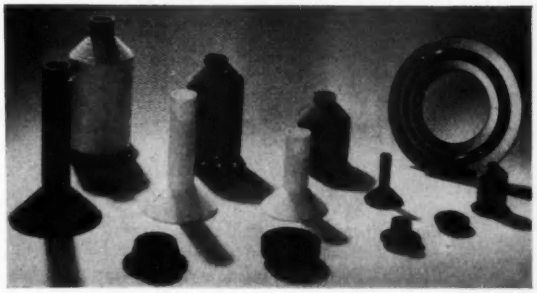


The machine operates as a normal spinning frame and requires no special training of operator. It eliminates the preparatory machinery (opening, lap making, carding, drawing, slubbing, etc.) and is simple to maintain and to keep clean.

The 750 den., 720 fil., viscose tow in use on the machine was supplied by Dobson and Barlow Ltd. The machine is also processing "Terylene" fibre tow supplied by I.C.I. Ltd., Fibres Division, Harrogate. The agents in Great Britain are Sanderson and Co. (Textile Engineers) Ltd., Deanroyd Works, Walsden, Todmorden, Lancs.



(left) Hardaker's 16-colour endless paper axminster jacquard (not on show)

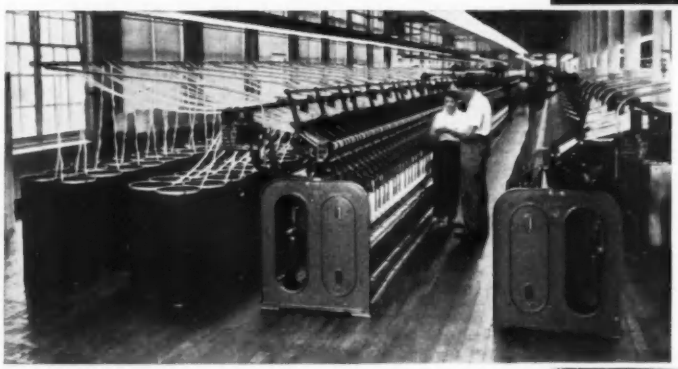


(right) Plastic bobbins, cylinder covers, etc., made by V. and E. Plastics

BOYD'S TEXTILE MACHINERY FOR QUALITY AND EFFICIENCY

Flyer Spinning Frames

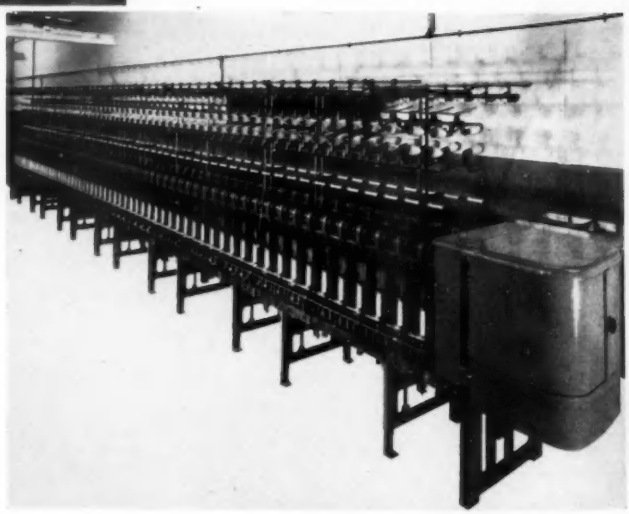
For Worsted and man-made fibres.
High speed. Simple doffing.
95% efficiency. Large packages.



High Draft Roving & Spinning for Worsted, Man-Made Fibre or mixtures

Stop Motion Ring Twister with endless face belt drive to spindles

Spindles always central to rings.
Narrow frame. Large package.
High speeds. Bobbin 9″ × 2½″ to 9″ × 4″.
Suitable all fibres.



We will be pleased to arrange to show any of our machines under mill conditions.
We are making Saco Lowell High Draft Roving and Spinning Machines under licence.

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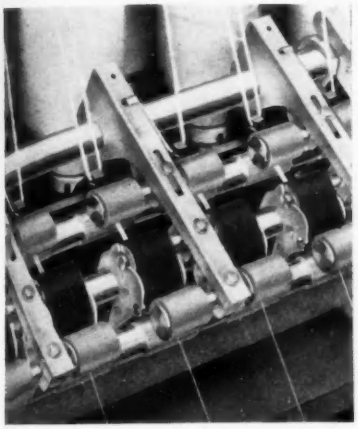
Casablancas High Draft Co. Ltd., Salford 3—Stand No. 1510 - 1606. The wide range of drafting equipment, and accessories for spinning and preparatory processes on show includes the GX2 drafting system. This new top-arm system incorporates positive attachment to the back bar to prevent loss of adjustment in use, a catch which includes locked adjustment, and arms so small that full box-length top clearers can be used. Long or short fibres can be drafted into excellent yarn, and the system is shown spinning medium and fine cotton counts, and synthetics and mixtures of various staples. A 2-zone speed-frame system on view is capable of producing, directly from draw-frame sliver, roving suitable for spinning



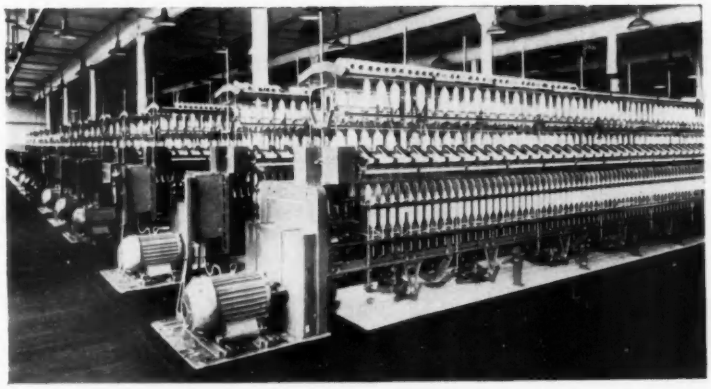
Casablancas GX2 system

into yarn with no further speedframe passages. This system is intended for cotton and short-staple synthetics. The U3 system on the stand is a single-passage speed frame system for fibres up to 3 ins., with simple adjustment to cope with various staples, including cotton.

Additional features to be seen include a display of roller cots for machines processing all types of fibres; roller coverings for sizing and finishing machines; synthetic rubber buffers, pickers and other weaving accessories. A working display of the company's well-known bobbin holders can be examined, also the constant card attachment is shown continuously stripping a card, thereby saving much stripping labour and cotton. Sliver evenness is also claimed to be improved.

* * *

British Thomson-Houston Co. Ltd., Rugby—Stand No. 2504. The wide range of equipment made by B.T.H., including machinery designed specifically for the textile industry, is represented at this display. The electric motors on view include examples from the company's comprehensive popular ranges. British Standard dimension motors of from 1 to 40 h.p. include the well established totally-enclosed fan-cooled Type KN-B (BS.2083) and the latest ventilated Type KN-C (BS.2960) in drip-proof enclosure. Sectioned models running under power show the construction of these two machines. A selsyn used with a variable-speed motor demonstrates remote synchronous drive.



10 h.p. B.T.H. Type KW-B totally enclosed fan-cooled motors driving ringframes in Combined English Mills Ltd., Atherton

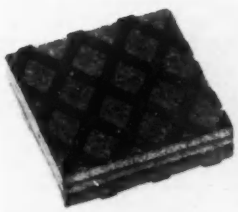
Motors of various types, including fractional h.p. and geared motor units, for driving looms and spinning machines are also featured; together with working demonstrations of electro-hydraulic thrustors, selsyns and sectionalised models.

Amongst industrial control gear are direct-on-line contactor starters for motors up to 5 h.p., including a new design with isolator switch. Examples of limit loom, and pressure switches and an A.C. "Perigrip" electro-magnetic solenoid-operated brake are also on view. Electric heaters from the industrial range include "Pyrobar" steel and lead-sheathed units for application to vats; also straight-length elements. Electronic equipment includes the "Emotrol" electronic control unit for a 2 h.p. motor. This equipment is ideally suited for application to knitting, reeling, and beaming machines, etc.

* * *

Farrell Machine Tool Co. Ltd., Stamford New Road, Altrincham—A wall case in **Hall B** holds examples of this firm's "Air-Loc," "Giant Grip" and "Standard" anti-vibration machine mounting pads developed to control and absorb vibrations emanating from looms, spinning and twisting frames, etc., whilst at the same time holding the machine in position without any need to bolt down or cement. The patented cork, sisal and vinyl construction ensures that the mounting pads are re-usable over many years, when machinery has to be re-located and they are said to be impervious to the effect of oils, detergents, weak acids, etc. Irrespective of the loading on the pad, its "recovery value" is 95% and this feature provides for stability in machine alignment, an important factor on machines such as spinning and twisting frames.

* * *



"Air-Loc" anti-vibration pad

H. S. Greenwood and Sons Ltd., Princess Street, Rochdale.—Stand No. 1020. To meet the increasing interest in various types of magnetic assemblies, this company's exhibit shows a wide variety of applications. A working model hopper feeder, with a series of large type "Blumags" above the lattice, is on the stand, also a section of a magnetic roller, a doffer protector, magnetic table, and a "hump-back bridge" for pneumatic delivery. Extra large and super-power magnetic units, designed for high efficiency extraction of ferrous metal are also available and will be gladly demonstrated.

A series of large type "Blumags" above the lattice in a hopper feeder

FIGHT COMPETITION BY REDUCING COSTS

Mirrlees' UNDERFEED STOKERS FOR ALL TYPES OF BOILER FIRING

HOPPER & BUNKERFED STOKERS

COMPLIES WITH PROVISIONS of the CLEAN AIR ACT

EFFICIENT AND ECONOMICAL **AUTOMATIC CONTROL**

USE HOME-PRODUCED SMALL COAL ABUNDANT SUPPLIES ARE AVAILABLE AT **REDUCED PRICES**

WRITE FOR BROCHURE FROM *THE SPECIALISTS IN SOLID FUEL FIRING*

The MIRRLEES WATSON CO. LTD., LONDON, GLASGOW, STOCKPORT

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EADIE RINGS

Eadie Rings are manufactured to the highest engineering standards, and are acknowledged for their ability to withstand the strain of modern high speed production.

They are made in a variety of styles and sizes to suit the spinning and twisting of all fibres and filaments.

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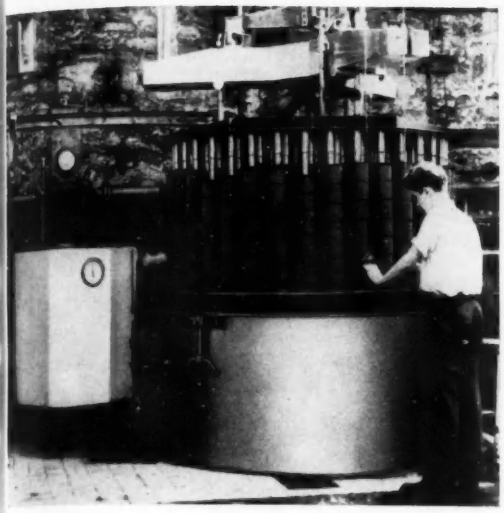
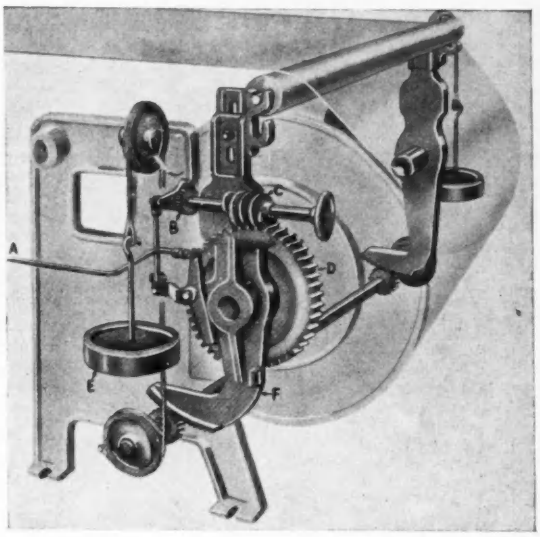
STAND 1615 TEXTILE MACHINERY EXHIBITION



(left) 600 Model loose stock and cheese dyeing machine (Fairway Engineering Ltd.)

(right) "Textomatic" automatic warp let-off motion (Heatley and Son Ltd., Blackburn)

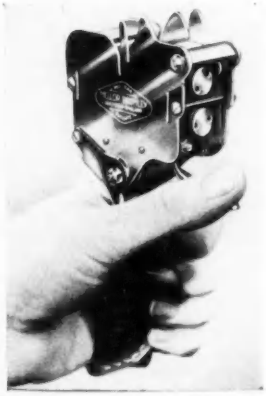


Fairway Engineering Co. Ltd., Little Hulton, near Bolton—Stand No. 2605. Three models from their range of loose stock and cheese dyers are on view. These are the models 400, 50 and a laboratory model. This patented machine is suitable for scouring and dyeing material in the loose stock or cheese form.

Large volume liquor circulation is provided by an axial flow impeller mounted in a transfer duct alongside the main chamber. Simple adjustment of machine capacity is provided. The machine is fabricated throughout from stainless steel. Loading and material handling may be assisted by the use of carts fitted with sockets to suit the standard cheese tubes. Thus, the loading and unloading may be effected in any convenient department and machine utilisation increased by rapid change over from dyed to preloaded tubes.

* * *

Mellor Bromley and Co. Ltd., Leicester—Stand No. 1410. A full range of hand-operated knotting machines includes types for every kind of yarn including the latest man-made and other slippery and difficult yarns. In addition to the Boyce weavers knotter, a new fisherman's knotter is exhibited as well as ordinary winders' and special purpose knotters. Demonstrated also is various hydraulic loom checking attachments on a working model, while the hand-operated "Markfix" machine for rapid marking of fabric will interest fabric examiners and processers.



Mellor Bromley's fisherman's knotter

On **Stand No. 1506 Mellor Bromley (Air Conditioning) Ltd.,** show a selection from the wide range of equipment available. The accent is on humidifying plant and the various examples shown illustrate how standard equipment can be adapted to suit requirements which vary from firm to firm in this industry, both efficiently and at economic cost.

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Spirax-Sarco Ltd.—Stand No. 1522. The highlight of the equipment on view is the new Thermodynamic steam trap. Made wholly of stainless steel, it is extremely modest in bulk, has only one moving part and works in any position up to 550°F. and 10-350 p.s.i. Hot water users are expected to be particularly interested in the new "Type 57" diversion valve. This controls the temperature of calorifiers, heater batteries and process plant working on high and medium temperature hot water. It is completely balanced against pressure and velocity effects, and employs packless glands which greatly reduce the need for maintenance. The standard "Type 57" valve has a bronze body with stainless steel valve mechanism, and a separate thermostat which can be calibrated between 0°F. and 300°F. The maximum permissible temperature and pressure of the heating medium are 360°F, 250 p.s.i. Not the least important function of the stand is the opportunity it offers for steam users to check whether they indeed have all the Spirax-Sarco literature which can be useful to them. The range of factual information sheets, for example, is constantly being extended.

* * *

Heatley and Son Ltd., Blackburn—Stand No. 1024. The "Heatley" mechanical warp stop motion in this show is precision made to give super sensitivity and maximum detection. It has a release clutch for weaving in new warp and positive stop motion transmission without springs or flexible cables. Reversible for either hand of loom, the driving head totally enclosed. The location of broken ends can be seen from front of loom. The headstock bearings are self-lubricating.

The "Textomatic" automatic positive warp let-off motion on view is claimed to give unvarying control of the warp in the loom or "Constant tension without attention" and no fluctuation in weaving quality. Another feature is the high feed rates from 8 picks per inch up to any number.

The "Ward" side dobby on this stand is a modern, compact design easily accessible for adjustment. Assembled with fitted bolts and spring washers, all bearings are "Reservoil" and require no lubrication throughout their life. The dobby is sold complete to the healds with all accessories and can be fitted to any make of loom.

* * *

Fleissner Ltd., Bradford 7—Stand No. 1102. The main feature here is a machine for the continuous dyeing, or washing, steaming and drying of cellulose based materials in either loose form, tow

Overall view of Fleissner dyeing machine

sliver or knitted piece goods. It comprises a hopper feed, a drum dyeing, or scouring machine, a squeezing unit, a wet opener, and a perforated drum dryer which can also be used for steaming. With this machine dyeing times for loose staple fibre, cotton and linen are said to be reduced from one hour in conventional systems to less than 3 minutes. Another interesting factor is that it is possible to continuously feed loose white material at one end and produce evenly dyed material at the other. The dryer itself can also be used for drying all types of material in any of the above forms, also for drying hank yarn. The advantages claimed for this machine are extremely small floor space, low steam consumption, and very efficient control of residual moisture.

Visitors will also see a chainless revolving rod hank dryer for drying hank yarn of all types. The most salient feature of this machine is that the rods are self-propelled through the machine without any chain, and in consequence, the risk of soiling the material by the ends of the rods is completely eliminated. Here again the machine is simple to operate and occupies little room. A machine with a chamber 5 ft. long × 6 ft. wide, is stated to give a production of 2,200 lbs. of wool hanks in 8 hours, giving even drying with a soft handle and good appearance.

* * *

Benton and Stone Ltd., Birmingham 6—Stand No. 2507. The two main types of equipment featured here are (*a*) lubrication equipment and (*b*) pneumatic control equipment. On view for the first time is a fully automatic version of the company's one-shot centralised lubrication system, which gives an accurate predetermined amount of oil to each outlet. The system consists of a pump, electrically controlled, which when switched into operation, charges the metering chambers fitted to the distributors until a pressure of 120 lbs. p.s.i. is reached. At this pressure the pressure switch operated and through the relay, stops the pump. The pressure in the main line is relieved by a by-pass valve and the metering chambers are allowed to discharge oil to the points to be lubricated. Frequency of operation thereafter is governed by the timing clock. Hand operated and air operated versions are also on view.

Electrically controlled pump and reservoir system from automatic one-shot lubricating system (Benton and Stone Ltd.)

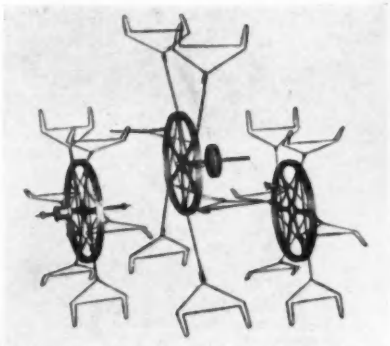
Main interest from their range of pneumatic control equipment is a range of 3 ins. and 2½ ins. bore air cylinders, available with cushioning arrangements fitted on the inside of the end mounts to reduce risk of fracture. In addition to the range of control valves on view is a recently developed electrically controlled valve. This allows air circuits to be electrically controlled and automatically operated by a synchronous electric timer. Grease guns and nipples, oilers and solderless pipe fittings are also displayed.

* * *

Electrical Productions (Leeds) Ltd., Hope Road, Leeds 2—Stand No. 2005. The W.I.R.A. reaching-in machine on this Stand, automatically reaches in warp ends and transfers them to the drawing-in position; it thus does away with reaching-in by hand. The machine consists of a frame for mounting the warp, healds and reed, and a travelling carriage or selector unit. Selection of the ends is by means of a single finger unit from an end-and-end lease and the selected ends are then transferred to a storage magazine to await the attention of the drawer-in. A light is mounted behind the magazine and two simple adjustments control the selector mechanism. A travelling seat is an integral part of the machine and all types of healds can be used as well as all kinds of yarns. Two models are on view: the No. 1 for the woollen and worsted trades and No. 2 for filament yarns.

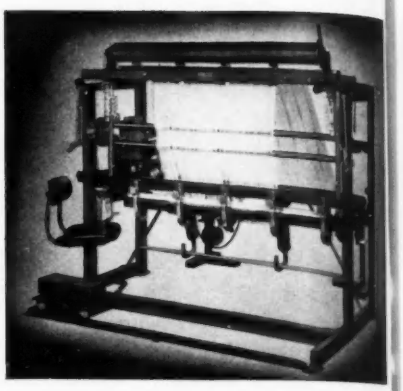
* * *

Manchester Metal Works Ltd., Salford 7—Stand No. 2502. The company present an excellent selection of textile accessories, including a range of cop dyeing spindles in stainless steel, supplied with or without ferrules. Great care is taken during manufacture to ensure a smooth finish and they are available in various lengths to suit requirements; taper or flange type ferrules can be supplied. A comprehensive range of adjustable swifts can also be inspected.



Adjustable swifts

Fitted with drum, pulley, or adjustable brake, the swifts have a special self-centring lock fitted to the rim, which is positive and smooth in operation; each can be supplied with or without centre spindle. Disc and gate-tension units, hard chromium plated and polished, are on view together with the company's combined yarn guide and clearer. Many more specialities displayed include the



W.I.R.A. reaching-in machine (Electrical Productions (Leeds) Ltd.)

well-known honeycomb self-cleaning slide-bars, expanding cake holders, feed wheels for silk ring-doublers, stainless steel separators for pressure dyeing, jacquard card clips and stops, dobby jack links, drawing-in needles, etc., etc.

* * *

Superbuilt Products Ltd., Harefield—Stand No. 2304. In conjunction with an associate company, Compressed Rubber Products Limited, the main items on view include castors with rubber tyred wheels. This special ball bearing castor was specially designed for one of the leading cotton manufacturers. The ball race is enclosed and the wheel is fitted with a precision type thread guard. Moulded rubber-tyred wheels with extra "C" grade tyres

Bobbin isolator rack (Superbuilt Products)

for easy movement can be inspected on the stand, also rollers covered with various grades of natural and synthetic rubbers.

Harefield flexible rubber doors with the latest patented hinge are on view, also Harefield flexible transparent doors with a similar type hinge. Additional features include a bobbin isolater rack, which avoids damaging yarn and is designed to take off a complete doff. in addition to "Superlite" dry work trolley with detachable washable canvas bag and an aluminium wet work trolley.

Ina Needle Bearings Ltd., London, W.1—Stand No. 2706. Of considerable interest to engineers and machinery design staff where anti-friction roller bearings are concerned, the display by this company covers an enormous range of applications. The comprehensive display includes needle cages, needle bearings without inner race and those with inner race, also shell type

I.W.A. combined needle-thrust ball bearing

needle bearings, combined needle-thrust ball bearings, combined single and double thrust needle ball bearings, self-aligning needle bearings, flat needle cages, thrust needle cages, roller and cam followers, etc. Staff present will gladly answer questions relating to applications, features, selection, lubrication, etc.

* * *

S. A. Serra (Exporters Seimex S.A.), Barcelona, Spain—Stand No. 1314. The "Carminati-Serra" card made by this company is outstanding for its small size and excellent results in production and quality. The makers say the price of this recent machine is less than the conventional types of card, also that maintenance costs are small and less power is required. Pointing out that no stripping is required the firm also say the floor space occupied is much smaller than that required by the ordinary card.

The "Slibomatic," a new Serra machine with many interesting features, has been designed especially for sliver-to-yarn spinning. It produces bobbins of over 7 lbs. weight (15 ins. long and 10 ins. dia. when full) and these can be accommodated on ordinary ringframes down to $2\frac{3}{8}$ ins. spindle gauge. Designed to improve the quality of yarn, this modern machine is fitted with an electric stop motion and high production is claimed for it. Easily operated and maintained, it makes sliver to yarn spinning a practical proposition.

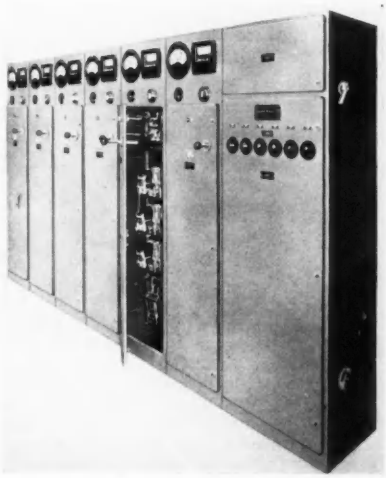
The "Serra" cotton ringframe is equipped with the new Balmes drafting system for sliver-to-yarn spinning. A simplified creel is installed to take sliver bobbins from the "Slibomatic" machine, also a simplified building motion. The jockey pulleys have adjustable tension and mechanism for reverse spinning. Equipped with collective spindle lubrication (Serra system), the machine is fitted with a variable speed motor and access to gearing is particularly easy. The U.K. representatives are Balmes (England) Ltd., Springfield Works, Bradford Street, Bolton.

* * *

British Nylon Spinners Ltd.—Stand No. 2701. Service to the textile industry is the theme of this display. The stand is staffed by members of the large team of technologists, all specialists, available to give expert advice and assistance on all aspects of yarn processing, weaving, knitting, dyeing, finishing and making-up. Technical literature is available in several European languages as well as English. The range of yarns produced by B.N.S., already great, is steadily increasing. In addition to yarns already well known, B.N.S. are showing some newer ones designed for particular uses. Attention is drawn to the work devoted to producing new types of yarn packages designed to facilitate further processing. Examples are heavier packages for the warp knitting trade and tyre cord converters.

* * *

Small and Parkes Ltd., Hendham Vale Works, Manchester, 9—Stand No. 1419. These well-known products will be exhibited are on view: grooved "Roko" belting is ideal for all heavy drives, also nylon belting which has proved its worth on tough cotton mule down-drives, and nylon drop stamp belting. "Roko" spindle tapes, webbings, endless speedbelts, cone drive belts—all high-quality products—can be examined, also woven endless belts in cotton, nylon, "Terylene," flax, etc. "Karmal" gland packings and jointings, "Donvee" driving ropes and "Don" industrial brake linings and clutch facings complete this highly interesting arrangement.

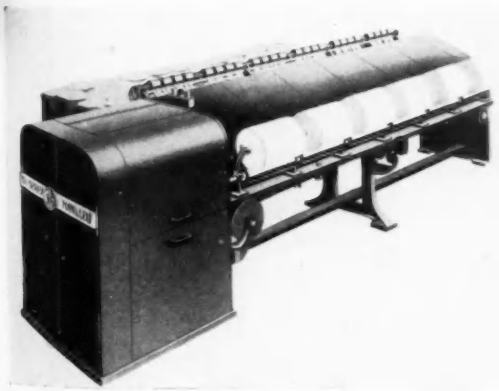


Erskine-Heap multi-motor contactor switchboard

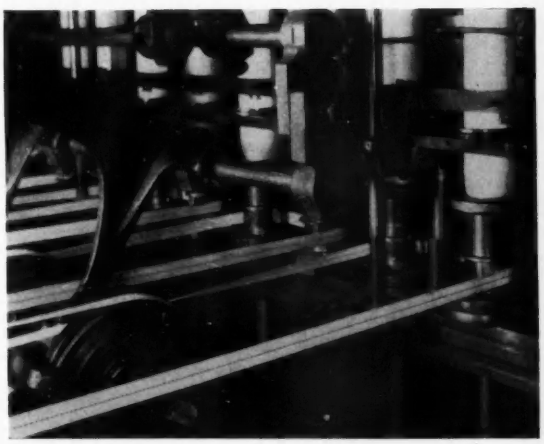
Erskine, Heap and Co. Ltd., Manchester 7—Stand No. 2705. Examples of the company's range of switchgear and motor control gear on this stand include switchgear up to 11,000 volts, 250 MVA ASTA tested rupturing capacity; low tension switchgear; motor control gear, both of the hand operated and contactor pattern for direct starting, star delta, autotransformer and slip-ring starting; d.c. circuit breakers; knife switches; fuses; isolating links; flameproof switchgear and motor control gear; moving iron ammeters and voltmeters. A basic principle of the low tension ASTA tested circuit breaker is the patented contact layout and on the 250 MVA high tension circuit breaker the patented "direct-blast" arc control device.

* * *

J. Hengstler, K.G., Kreis Tuttlingen, Germany—Stand No. 2303. The main theme of the exhibits on the stand of J. Hengstler, K.G., is pre-determination and control of production by means of automatic counters. In the spinning range, Type 86 offers a solution to the problem of pre-planning of sliver production either by yardage or the hank system. A pre-signal light warns the operative that the predetermined length is imminent, but if not noticed the machine will be stopped by



(left) The "Slibomatic" — specially designed for sliver-to-yarn spinning



(right Small and Parkes "Roko" spindle tapes

Hengstler hanks or yds./metre counter

means of a built-in electric switch. This counter can be equipped with a totalisor for one, two or three shifts. Hank counters up to three shifts for spinning and doubling frames etc., are also to be seen. For the yarn preparation section, types 33a and 33b pre-set counters are specially constructed for the production of measured lengths and can be adapted to most makes of winding frames. Mechanical or electric stop motions are incorporated; also worthy of mention is the type 33b with scissor device.

In the weaving field a complete range of pre-determining counters include No. 63 pre-set pick counters with or without totalisors up to three shifts, loom cut meters with mechanical or electric stop device and loom pick counters for up to three shifts. Amongst the revolution counters on view is a special type of pre-determining counter No. 234a, with automatic repeating device and built in electric switch. This counter offers numerous possibilities especially when it is desired to continue the flow of production without interrupting the movement for re-setting. Sole agents in the U.K.: J. Darbyshire and Co., 109 Chorley Road, Swinton, Manchester.

* * *

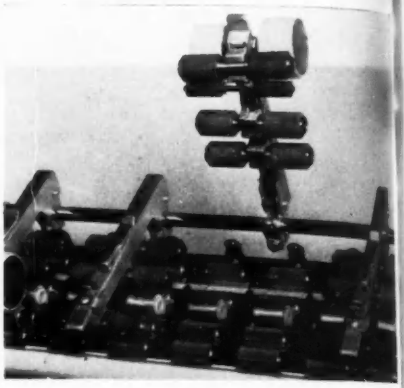
Joseph Stubbs Ltd., Ancoats, Manchester—Stand No. 1511. On this stand the firm's 16 spindle high speed "Ozri" cone winder is running with one side arranged to wind knitting taper cones, and the other side for winding cheeses and various tapers of cone with straight ends. A feature of this winder is simplicity of design, and each spindle is independently driven, and has its own differential motion. A variable speed drive is installed on each side to give infinitely variable winding speeds from 400 to 1,000 yds/min. The coarser side of the industry is catered for by the heavy pattern winder for making 9 ins. traverse cones or cheeses for the carpet trade, etc. One side of this machine is arranged for winding multiple ends on to cheese, and a special feature on the single winder side is the arrangement to give measured lengths on each wound package.

A machine of interest to dyeing sections is the high speed soft package winder making 5 or 6 ins. traverse soft wound cheeses or cones on paper or stainless steel tubes. A new machine on view is a sealing and wrapping machine, also a hydraulic press for making 5 and 10 lb. bundles of yarn in hank form in addition to a single head heavy pattern close winder for making 8 ins. traverse by up to 8 ins. dia. precision wound cones or cheeses.

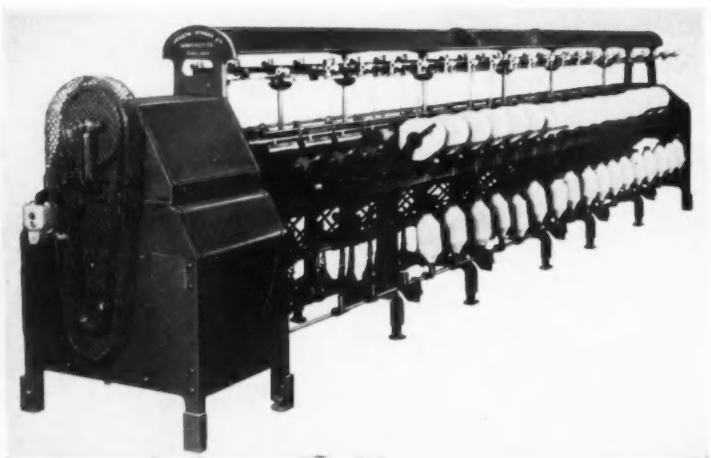
* * *

D. Delerue and Cie, Roubaix, France—Stand No. 1106. A three-spindle solid cop winder operating at 7,000 spindle revolutions r.p.m. can be seen on this stand. Due to the vertical wind and to a special patented former the Delerue package is tensionless and normally, is stated to contain a greater weight of yarn in a given diameter than in comparable machines. A number of advantages are cited by the makers including: (*a*) more yarn can be accommodated in the shuttle allowing more looms per weaver; (*b*) greatly reduced waste and cloth mending and (*c*) fewer winders per loom spindle. A special jute solid cop winder on show is designed for packages for circular looms. This winder makes package of 16 ins. long and 3·2 ins. dia. Shown for the first time anywhere in the world, the company's new "Rocket" winder has been designed for winding packages for dyeing, warping, hosiery, etc., purposes. Winding takes place with consistent and minimum tension at speeds of up to 1,130 yds./min. and the maximum size of package which can be produced is 5½ ins. dia. and 36 ins. long. (The U.K. agent is Geoffrey E. Macpherson (Textile Engineers) Ltd., Nottingham.)

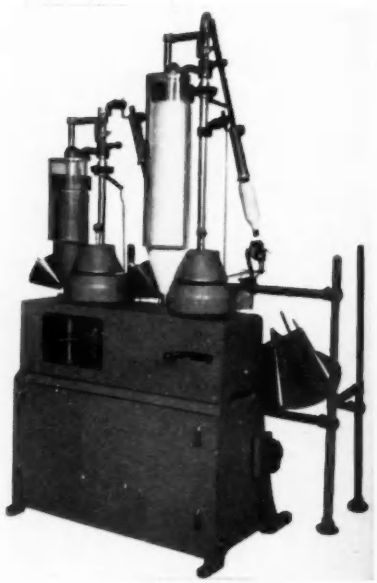
Balmes (England) Ltd., Springfield Works, Bradford Street, Bolton—Stand No. 1314. The latest Balmes drafting system is shown fitted on a ring frame spinning from "Slibomatic" bobbins. The drafting system is capable of drafts of 150 and over and it remains a four-line roller system only which, it is pointed out, permits it to be fitted to any make of ringframe without presenting any mechanical difficulties. Great simplicity and easy handling combined with high quality production are the main features of this new drafting arrangement. This new Balmes system is also used in mill practice for spinning from conventional flyframe bobbins as the range of total draft can vary from 10 to 150 or more.



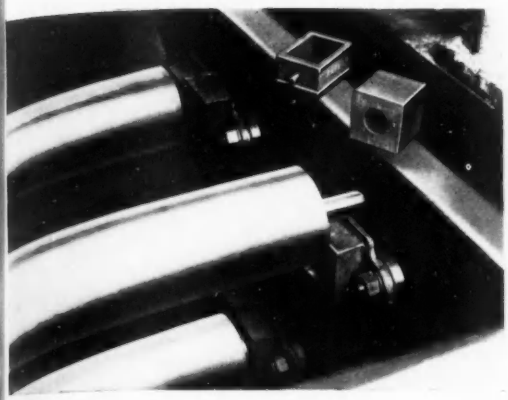
The latest Balmes system



Stubbs' heavy pattern quick traverse single winder



Delerue "Rocket" winder



(left) Tufnol dye jig bearings, claimed to last five or six times longer than the metal bearings previously fitted

(right) 'Scalital" bobbins, pirns, cones and tubes

Tufnol Ltd., Birmingham 22B—Stand No. 2506. This detailed selection of components highlights some of the numerous uses for Tufnol in the textile industry. These include gear wheels, racks and pinions, dye jig bearings, bobbins, quills (pirns), shuttles, picker bushes, truck wheels, pulleys and rollers. Tufnol is shown in its basic forms of sheet, tube and rod. Several brands are available and each can be machined easily and accurately. These components withstand rough usage, neither splinter nor warp and resist corrosion. Dye jig bearings of Tufnol depend for lubrication solely on the solutions in which they operate and, it is stated, cases are known where some of them have lasted six times longer than their metal counterparts; furthermore, as Tufnol is sympathetic to other materials they did not wear the stainless steel journals.

* * *

Longclose Engineering Co. Ltd., Leeds—Stand No. 2203. A hank dyeing machine exhibited incorporates the Brown/Longclose double stick system. Designed for dyeing fast colours on hosiery, hand knitting and fine quality yarns with levelness and without damage, also for dyeing high bulk synthetic staple fibre yarns, narrow fabrics in hank form, etc.

A totally-enclosed 4-beam/package pressure dyeing machine, for applying all types of colours, is fitted with quick-acting Longclose pressure cover. With the machine is shown material carriers to enable 4, 3, or 2 beams to be dyed or alternatively cheeses or cones. The universal high temperature pressure dyeing machine on view is for dyeing natural or man-made fibres in loose stock, yarn in many types of packages or hanks, or narrow fabrics slubbing, etc., at temperatures up to and above 130°C. The machine shown has a variable speed drive for universal operation, quick-acting Longclose pressure cover operated by a handwheel and fully automatic process control equipment. Various types of materials' carriers are shown including those for beams, cheeses and cones and also the firm's radial flow slubbing frame. This frame is suitable for slubbing in ball top and bump top and is fitted with the special quick acting follow-down locating headers which eliminate channeling and consequent felting. A pilot high temperature sample dyeing unit on the stand is for carrying out sample dyeings on a single cheese or cone or approximately 1 lb. of loose material of natural or man-made materials at temperatures up to and above 130°C.

* * *

James Holdsworth and Bros. Ltd., Huddersfield—Stand No. 1619. Manufacturers of all types of card clothing for the woollen, worsted, cotton, synthetic fibres, asbestos, flax and linen, and engine cleaning waste trades, they are exhibiting two machines of the most modern type, both in operation, setting card clothing and which are identical to those in use throughout the whole fillet machine section of their plant at Huddersfield. Samples of the many types of card clothing manufactured by this firm and their subsidiary, George Good Ltd., are available for inspection.

* * *

Martino Scaglia, Italy—Stand No. 2300. The wide range of bobbins and pirns displayed include a steaming bobbin of patented construction with flanges of high resilient fibre and light alloy barrel. The "Scalital 56" and "57" bobbins have been specially designed for the manipulation of synthetic fibres, and are dynamically balanced. A large package bobbin also of patented construction with compressed beech-wood barrel, fibre top flange, and multi-ply bottom flange is in use in large quantities for the manufacture of acetate yarn. The normal type bobbins supplied to many spinners are also on show; pirns for automatic and ordinary looms are made to customer's specification.

The British agent is Donald C. Middleton Ltd., 1 Stone Street, Manor Row, Bradford 1.

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Tomlinsons (Rochdale) Ltd., Rochdale—Stand No. 1505. Nearly all the exhibits are new and include the "Drydapta" drying machine, of unit construction, available in four standard sizes with a choice of three sizes of heating battery. It can be purchased with or without heating batteries or fan system. The 36/AZ raising machine promises to provide the industry with the answer to many raising problems and the "Metazel" raising machine incorporates full electronic control with the use of revolving metallic teazles. The machine is made in two standard sizes—"Metazel/16" and "Metazel/22"—and is exhibited in a vertical tandem set up with the 36/AZ machine. Dust extraction plant is in operation connected to the 36/AZ raising machine. Constructed from "Seelheet" panels, it incorporates a fusible link operating fire damper shutters. Other exhibits include a "Seelheet" enclosure and the "Turblex" gilled tubes. Photographs of other machines manufactured by them, together with full descriptive literature is available.

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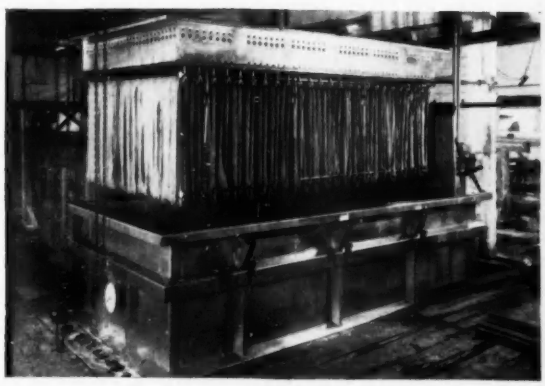
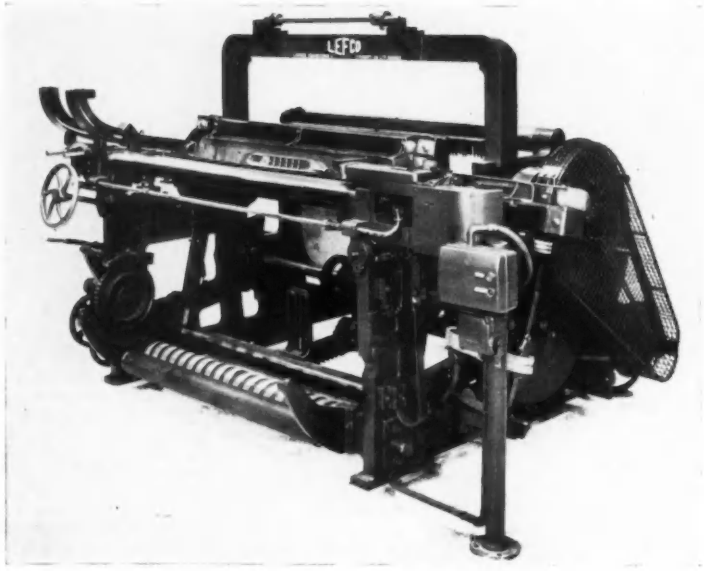
(left) Totally enclosed four beam package pressure dyeing machine

(right) Double stick hank dyeing system

Longclose Engineering Co. Ltd.





Underpick automatic jute loom (Thos. C. Keay Ltd.)

Thomas C. Keay Ltd., Dundee—Stand No. 1411. The main exhibit is a fully automatic underpick jute loom, 46½ ins. r.s., made by Lawside Engineering and Foundry Co. Ltd. This incorporates the automatic shuttle loading device, the "Ecco X" extractor type shuttle loader, which is suitable for operating with centreless wound cops. The "Ecco X" is a development of the well-known "Ecco" loader, originally an Italian invention, manufactured by this company since 1949. The "Ecco" loader has widely been adopted by the jute trade. The underpick loom on view is also fitted with an "Argus" mechanical warp stop motion produced by Irvin Hudson Ltd., Bradford, and the beam on this loom has 36 ins. dia. beam flanges; the picking speed is 154 picks/min.

In addition a full range of steepless batavia hide pickers for all sections of the textile industry are shown also jute loom persimmonwood shuttles and patent "Ecco" automatic loom shuttles. A range of "StelKord" steel-ended bobbins for gill spinning frames, and on certain sizes of jute twisting frames can be seen on the stand.

* * *

Dobson and Barlow Ltd., Bolton—Stand No. 1502. Nearly 60 years of specialised global knowledge in viscose rayon yarn spinning and transparent film production is at the disposal of visitors to this display. Today, the famous "Nelson" continuous rayon spinning machines are spinning high quality viscose yarn in 12 rayon producing countries abroad as well as in this country. Dobson and Barlow Rayon Machinery Sales Ltd. supply complete viscose rayon plants—from start to finish—including all ancillary equipment. The Dobson and Barlow transparent film machine produces superlative quality film at 7 ft./sec. Designed and manufactured in close collaboration with the industry—this high production is made possible by eight-pass treatment tanks, accelerated cylinder drying and improved reel tensioning, etc. At this exhibition the stand takes the form of an information bureau where sales and technical representatives, chemists and engineers are in attendance to discuss projects, plans and machines for complete viscose rayon yarn and transparent film production.

The company extends a cordial welcome to visitors at their pilot plant at Bradley Fold, Bolton, which will be open during the full course of the Exhibition.

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Excelsior Fibre Co. Ltd., Bury—Stand No. 1431. Waggons of every description, doffing boxes, sliver cans, mill boxes, can seats and "Autoleveller" cans are set out here. There is a "Neverdone" container for practically every need in the mill. Made from genuine vulcanised fibre, they are built stoutly to withstand the rough usage of busy personnel and so designed that there are no protruding rivets nor any roughness. Light in weight and easily handled they are smooth as silk yet extremely tough.

* * *

Excelsior sliver can wagon

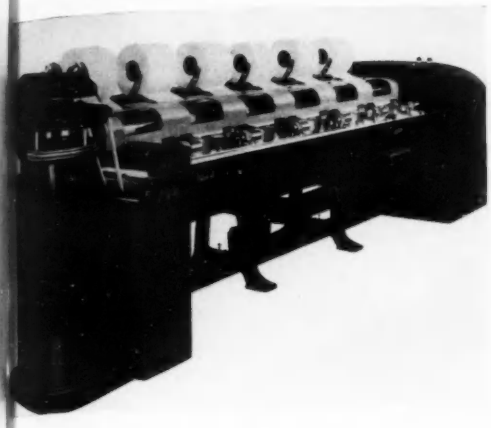
Morel Type DIV machine for hanks, etc.

Etabs. Morel Freres, s.p.r.l., Gentbrugge, Belgium—Stand No. 2009. Several models from their range of automatic conditioning turbines can be seen in operation. The Type F1T Conditioning Turbine, suitable for cones, cheeses and yarn on dye-springs, has a production up to 250 packages an hour. The yarn is first wound on to a perforated paper tube and the required amount of liquid automatically injected by centrifugal force and evenly distributed throughout the package; time to condition each package about 12 secs. The Type F2T for cones and cheeses operates on exactly the same principle as the F1T turbine, but it is a double machine with an output of up to 500 packages an hour. The Type D1V automatic turbine, for bundled bunches and loose hanks, is also on view.

A new yarn conditioning machine for cops on view has automatic moisture control for use in spinning mills, also a conditioning apparatus can be seen with automatic moisture control, for conditioning hanks and skeins in bundled bunches and cops, cones and cheeses in packing cases. A variety of "Morel" yarn conditioning products, specially developed for use with the conditioning turbine and all other yarn conditioning machines, as well as winding machines, can be seen. These are wetting-out agents, with high penetrating properties, which set the twist in the yarn, ensure against mildew and prevent any chemical reaction on dyed yarns from taking place. Sole agent in the U.K. and Ireland: R. S. Maynard, Langham Court, Fielden Park, Manchester 20.

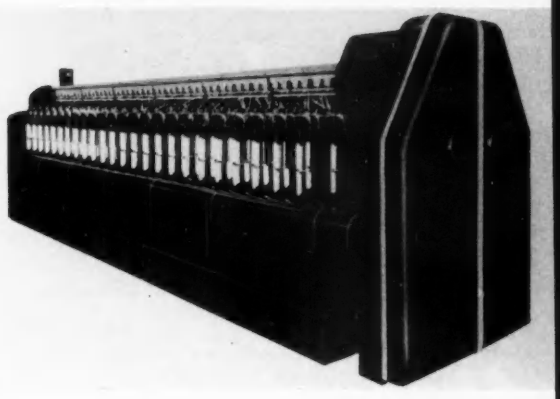
* * *

William Kenyon and Sons Ltd., Dukinfield—Stand No. 1307. Various products made by the company are on view. A feature of the display is the U.S. "Powergrip" timing belt and pulleys for which the firm are the main distributors in the U.K. "Kennylbond" nylon bonded spindle tapes and P.I. driving ropes can be inspected, in addition to a wide range of various power transmission products including speed reducers, variable speed pulleys, motor bases and other interesting items.



(left) The "Hartford" high production comber

(right) Platts' MS2 speedframe

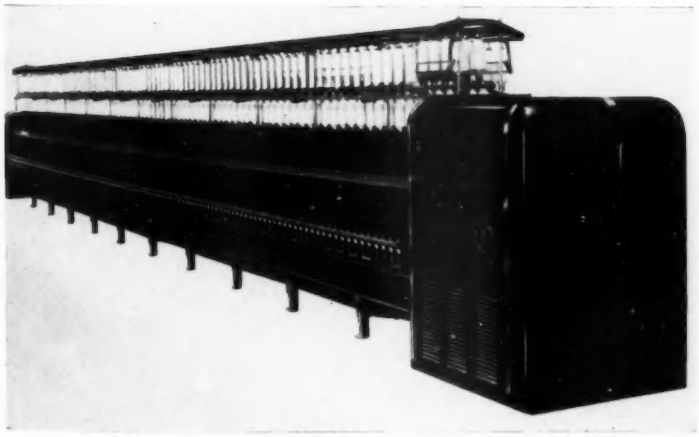


Platt Bros (Sales) Ltd., Oldham—Stand No. 1501. The Continental card on view here offers valuable savings in floor space and gives increased production per square foot of floor area. Features include motor drive at delivery end; eccentric housings for fancy rollers; adjustable covers to burr beaters; dirt trays to first stripper over each cylinder; close, permanent settings for workers and strippers; efficient burring appliances; a 20 ins. coiler; and simple and effective guarding. The new M.A.F.3 automatic feeder with extended hopper provides extremely accurate weighings. A single trap door and electrically operated weigh mechanism are standard fitments.

The "Hartford" six-head high production comber displayed gives an output of up to 44 lbs. per hour. Laps of 20 to 40 dwt. may be processed and slivers of 40 to 60 grains/yd. produced with either single coiling or bi-coiling. It will comb effectively laps made on any of the currently recognised systems of preparation. Operating with equal efficiency at waste extractions from 6% to 25%, it is eminently suitable for all classes of work from super-combing through to semi-combing. Excellent fibre fractionation, 2 over 2 drafting at the drawbox, master settings for nippers and top combs, automatic lubrication, sensitive stop motions, comprehensive guarding and operational simplicity are but some of the advantages.

Although large package spinning has resulted in considerable economies for many concerns, it is essential that a clear distinction should be drawn between "maximum" and "optimum" packages. Basically, the problem is that some costs increase with package size, while others decrease. It often happens, therefore, that the most suitable size for a given set of conditions will not be the maximum determined by technological considerations alone. To illustrate this point, Platts show two machines—a 12 ins. × 7 ins. MS.2 slubber and a 9 ins. × 2 ins. MR.3 ringframe, both optimum sizes for certain conditions.

This variation of the company's high efficiency MS.2 speed frame is a slubber producing 12 ins. × 7 ins. bobbins containing up to 65 ozs. of roving with normal winding and up to 80 ozs. with high tension winding. Increased spindle speeds —up to 730 r.p.m. for this size of package— can be obtained readily. The machine is equipped with "Arro" flyers which have a considerably improved finish, particularly on the inside of the hollow leg, obtained by electrolytic polishing. Single hole pressers are used for normal winding, while the two-hole presser will permit either normal or high tension winding to be employed.



Platts' MR3 ringframe

The MR.3 ringframe incorporates many improvements which enhance its overall efficiency. It is an all-count, general purpose machine, simple in design and clean in operation, and reduces operative work loads. Available in lifts from 6 to 12 ins., a range of drafting systems can be applied, while the "Pneumafil" system is an integral part of the machine. The ring-rail mechanism has been simplified, and the frame can be fitted with a cop, roving, combined or triple building motion. "Anti-wedge" rings in combination with elliptical type travellers normally allow higher spindle speeds to be obtained, while balloon control rings can be fitted where necessary. Roller bearing spindles, one-shot lubrication, etc., are fitted as standard. (This ringframe can be seen on the Parks-Cramer Stand—No. 1503.

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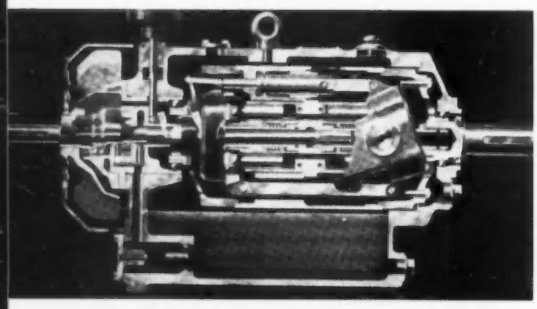
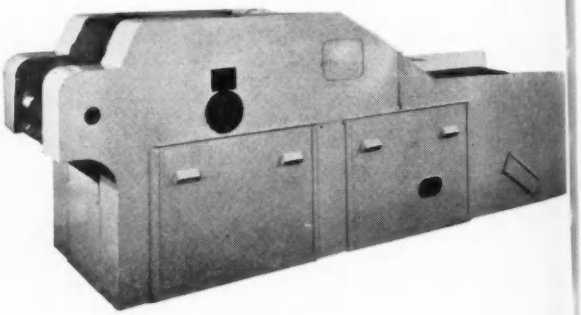
G. H. Heath and Co. Ltd., Macclesfield—Stand No. 2704. A very attractive range of exhibits includes nylon and "Terylene" thrown yarn in various deniers on beam, pirn, cheese, cake and cone for weaving, and cone for knitting. Examples of "Fluflon" (Regd.) and "Fluflene" (Regd.) crimp in various deniers from 2/30 denier to 2/200 denier is exhibited both dyed and undyed. G. H. Heath and Co. are the original licensees of this special method of false twist crimp. A display of silk organzine and tram for weaving together with certain end products such as tie cloth, hat galloons and broad cloth made from same complete this stand.

* * *

Guest Keen and Nettlefolds (Midlands) Ltd.—Stand No. 1003. A wide range of hexagon socket screw products in high tensile and 18-8 stainless steel available can be examined, also Wedglok screws which consist of a tough, resilient nylon pellet inserted in the body of the screw. This resilient pellet, projecting slightly above the thread, sets up a spring-like wedging action and tightly grips the threads, setting up a counter thrust, thus creating a strong metal to metal engagement of the mating threads. Wedglok nuts are available from stock. A range of nylon screws in B.A. sizes is stocked and headed hooks and eyes are also available. Bolt and nut division are one of the largest manufacturers of cup square, square bolts and nuts, bright and high tensile bolts, and square and hexagon head bolts for the cotton trade.



(left) The "Varicon" stepless speed gear unit



(right) The "Hygrojet" yarn conditioning machine

David Brown Industries Ltd., Huddersfield—Stand No. 2006. A highlight of the products shown is a stepless speed gear unit, the "Varicon," on view to the textile industry for the first time. Designed for drives up to 5 h.p., it is a hydraulically operated gear unit which provides steplessly variable output speeds ranging from the original input speeds to zero and back again, whilst transmitting full rated load. Power is transmitted partly by hydraulic and partly by mechanical means. The unit comprises a hydraulic pump and motor (of the hydraulic displacement type). These are mounted co-axially with their cylinder heads separated by a central plate, which distributes oil to the separate cylinder heads and takes the reaction of the oil pressure on the pistons. Swash plates mounted in substantial anti-friction bearings operate the pistons axially. Output speed is controlled by a graduated regulator.

Representative units from the well known "Radicon" range of speed reducers include a standard unit running in a transparent plastic case which enables the moving elements and lubrication system to be observed. A range of "Roloid" pumps includes one of transparent material delivering lubricant through a closed circuit. The stand also features Coventry geared motors, universal single and double reduction worm reducers for all types of machine-cut gears.

* * *

Davidson MacGregor and Co. Ltd., Hartley Wintney, near Basingstoke—Stand No. 1617. Stainless steel dye springs, cones, tubes, spindles, spacers, cake holders and flax yarn tubes are part of the comprehensive display on this stand. The firm also manufacture centres or cores suitable for all types of package dyeing in cheese, cone, top and cake forms, for use with various types of yarns both natural and synthetic. In addition, the company exhibit in conjunction with Brown Davidson and Co. Ltd., ball bearing top rollers. These one-piece aluminium die-cast rollers have special double shielded ball bearings with N.P.K. socket, and cork loaded synthetic rubber cover for long service and good drafting.

* * *

J. H. Fenner and Co. Ltd., Hull—Stand No. 1413. A new type of flexible coupling known as "Fenaflex," is one feature on this stand together with the special "Hainsworth" variable speed pulley introduced at the last textile exhibition. In addition, the display shows the various ways in which the "Taper-Lock" quick fixing device can be applied to pulleys, chain sprockets and flexible couplings all of direct interest to the textile machinery makers and its users. There is also on show the firm's well-known V-belts and flat beltings.

* * *

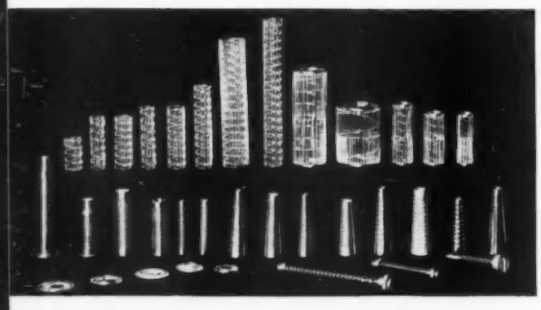
John Haigh and Sons Ltd., Huddersfield—Stand No. 2108. This well-known firm of textile machine makers show working a new model sample carder 12 ins. wide with tape condenser, two pairs of rubbing leathers and two heights of drums complete with card clothing, motor and starter. It is entirely self-contained and is suitable for blending, testing and dyeing departments. Another feature of considerable interest is the company's 60 ins. wide series tape condenser with four pairs of rubbing leathers, 14 ins. centres in four heights and four heights of drums complete with "Perspex" guards, fluorescent lighting and other modern improvements. For those concerned with the important questions of removal of impurities the Haigh-Bonser web clearer for carding machines has much that commands attention. With the top crushing roller grooved 52 per inch and the bottom one plain, this deals with impurities such as burrs, shives, skin, hard threads, etc., at low pressures in an extremely effective manner.

H. Cheetham and Co. (Machines) Ltd., Manchester Street, Oldham—Stand No. 1516. High output and low maintenance costs, with accurate controlled conditioning are special features of the new "Hygrojet"—one of the most up to date yarn conditioning machines in use today. The latest model is streamlined and enclosed and substituting nozzle type sprays for brush and roller type sprays has enabled the makers to effect a considerable reduction in the price. A wide range of control has been achieved by the introduction of by-pass valves which regulate the input of moisture. All parts coming in contact with moisture are non-corrosive material, including the lattice. The main structure is sturdily built and is designed to give long life under the heaviest treatment.

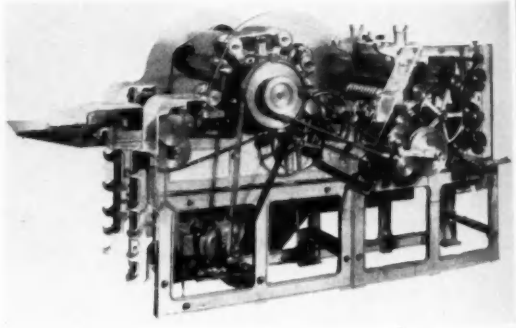
In the "Hygroscop" Mark II yarn conditioning machine, also on view, accurate and controlled conditioning is ensured and this latest model is also completely streamlined and enclosed. Maintenance costs are cut to a minimum. Visitors will also find much to interest them in the "Mac" yarn conditioning machine, designed for the conditioning of mule twist, weft cops, twiner cops, etc.

* * *

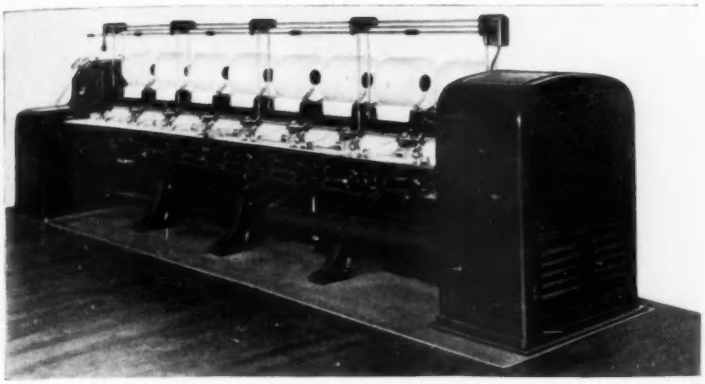
Emil Adolff, Germany—Stand No. 2008. A complete range of yarn carriers for the whole of the textile industry, in hardpaper, hardwood and plastics includes (*a*) for spinning—ring tubes, Rabbeth bobbins, home and export tubes, (*b*) for cotton and worsted spinning—hardpaper flyer bobbins thoroughly impregnated to give a smooth and non-porous finish, (*c*) for spinning and doubling—hardpaper warpers' and doublers' spools, (*e*) for winding—cone and cheese tubes in all types of surface finish and various degrees of surface impregnation. (Represented by Crowther Ltd., Thurmaston, Leicester.)



(left) Davidson MacGregor dye springs, tubes, etc.



(right) John Haigh's new sample carder



Whitin Super J comber

Whitin Machine Works, Whitinsville, Mass., U.S.A.—Stand No. 1604. On display in Europe for the first time is the Model K spinning frame of which considerable detail has already been published (*T.M.*, Sept., p. 460). Only 27 ins. wide this modern-styled machine has a single spindle drive which eliminates the cylinder, tapes and underframe pulleys. It also features straight line spinning, a new balloon control ring arrangement, new gearing and an improved builder contained in the head end.

In addition, the latest model Whitin Super J comber can be seen in operation, featuring a new nipper assembly said to provide even higher production on all combing ranges, better quality sliver, and superior nep removal. The machine has eight heads, runs at 150 nips/min., with, the makers say, 50% fewer parts than conventional combers. Whitin has also developed a new method of lap preparation.

Another machine of considerable interest to spinners is the "Even-Draft" drawframe which runs up to 400 ft./min., and has four over five drafting system with pneumatic waste removal unit on each head. Available in eight or four delivery machines, it uses 16×36 ins. cans (40·1×91·5 cm.), or 16×42 ins. cans (40·1×106·7 cm.). The frame features high production, excellent quality sliver of carded or combed cotton, synthetics and blends having lengths up to 3 ins. (7·6 cm.). (Sole representative for U.K. and Eire—A. E. Aspinall Ltd., 16 Cumberland Street, Manchester 3.)

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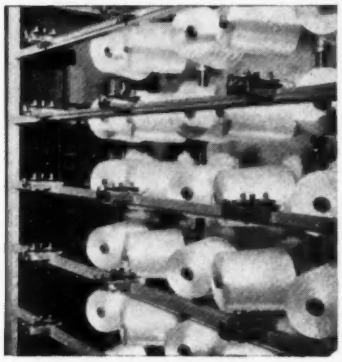
K. P. Mundinger GmbH, Renningen, Nr. Stuttgart, West Germany—Stand No. 2001. A moisture meter exhibited is designed to indicate from 4% to 30% moisture content in a material. Electric conductivity is directly related to moisture content and the instrument records through electrodes in contact with the material. The meter's accuracy helps maintain a pre-determined degree of moisture content, and gives optical and accoustic signals whenever the limits of the operating band have been passed. U.K. agents are Coates Smith Ltd., 33b Curzon Street, Derby.

W.H.K. Products Ltd., Quarry Bank Mills, Styal—Stand No. 2003. Short sections of four of the company's well-known range of creels are displayed. The V-type models are set up for continuous filament yarns and one for cotton. A section of a fully automatic creel is also shown; merely pressing a button or turning a screw raises or lowers the tension as required. A section of a lifting rail creel has on it the firm's latest tension control in which a compensator takes up 10 ins. of slack yarn and ensures control even during leasing. A high speed warping beam on view has a 10 ins. barrel and flanges of 30 ins. The company are also the agents for the Atkins Fulford high speed sectional warping mills, also the "Knotex" warp tying machine.



A W.H.K. creel

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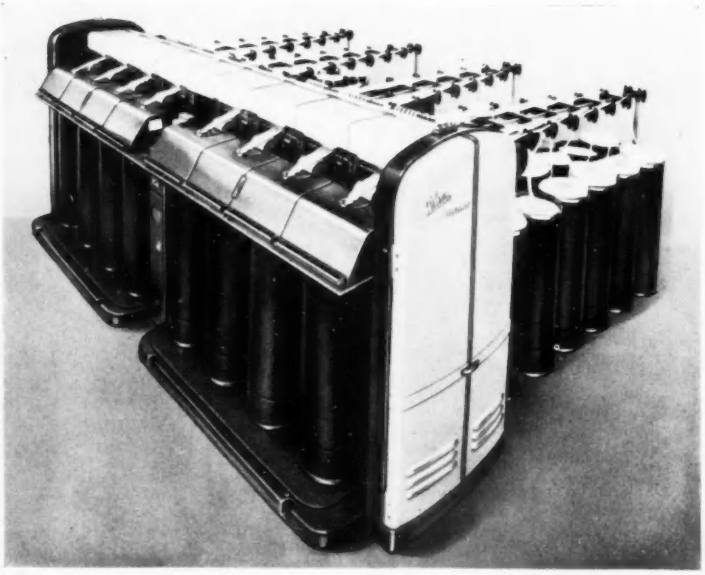
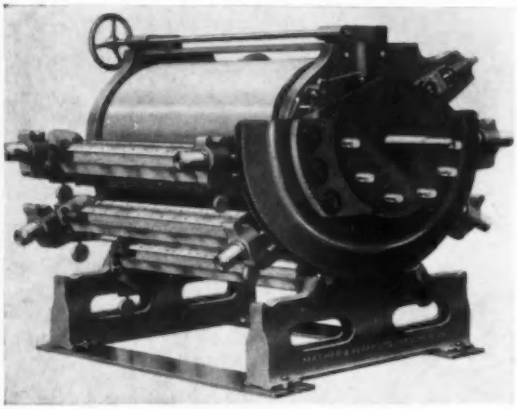
Henry Baer and Co. Ltd., Zurich—Stand No. 1106. Well known for their range of testing equipment, this firm have on view their yarn tester (Type IOE), a yarn motorised wrap reel (Type 3), their hydraulically driven single thread strength tester (Type 3C), and a hydraulically driven fabric and Lea strength tester (Type 1F). They will also demonstrate their sun test instrument for the first time, for determining the effects of sun light on all materials. This instrument will simultaneously test up to 50 samples and will create conditions of sunshine 24 hours a day. It is equipped for continuous operation at regulated air humidity in the testing chamber.



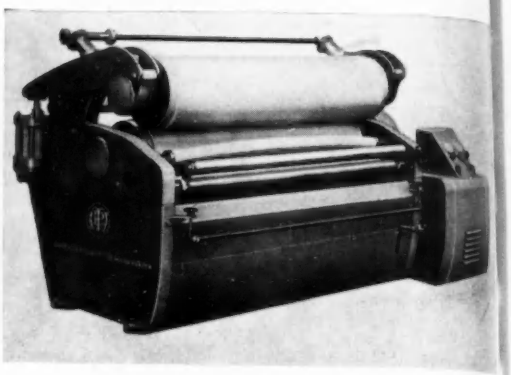
Whitin "Even-Draft" drawframe

Baer sun test instrument



(left) The new M. and P. six-colour printing machine

(right) Mather and Platt two bowl pneumatic off-set mangle



Mather and Platt Ltd., Manchester 10—Stand No. 2101. Among the new designs displayed is a six-colour printing machine in which the makers have concentrated on four vital features—perfect printing, reliability, safe operation and low maintenance costs. Features to which they draw attention include (*a*) a new pattern-pitching device accurate and safe in operation, (*b*) improved doctor traverse driven by a separate motor, (*c*) individually-controlled hydraulic loading for the nips—no setting-up screws, (*d*) roller bearings for the mandrels, and (*e*) mandrels located at one side only, with lateral adjustment confined to that side.

A six-cylinder vertical drying machine has features which ensure reliable performance at exceptionally high operating speeds. The cylinders are all-welded construction with stainless steel bodies, designed for pressures up to 60 lb./sq. in. Syphon pipes also are of stainless steel. A new rotary steam joint handles steam and condense at the same end, separate steam traps and air vents for each cylinder ensure maximum heat transfer, and the cylinders are carried in ball bearing journals.

The M. and P. two-bowl padding mangle, Type MC, on view is the result of intensive research into the features required for level and accurately controlled padding. The large diameter rubber bowls in roller bearings can be quickly removed. A skewing arrangement for the top bowl ensures level expression at all loads. Pneumatic loading with fingertip control provides easy individual adjustment at each side for pressures up to five tons, and an instant-acting main valve is included in the control panel. The drive is through readily accessible silent gearing arranged in one side of the frame.

A laboratory unit molten metal dyeing machine is displayed, combined with a small padding mangle used to assist adequate penetration of dense fabrics and those made from tightly spun yarns. Other developments in the range of Mather and Platt textile finishing machinery will be illustrated by models.

* * *

Crompton and Knowles Corporation, U.S.A.—Stand No. 1704 - 1804. The pick-and-pick automatic loom, or PAPA loom (see "T.M.," August., 415) is a reliable, simple, automatic bobbin changing loom for the outerwear, upholstery, etc. fields. Starting from a base construction incorporating features of the W-3 and W3A models, a new lay motion has been provided, built on a 4×3 box basis. This 3-cell separable shuttle box is so constructed that the first or top cell separates at the time of bobbin transfer from the two lower cells permitting two shuttles, if necessary, to dwell in the two lower cells at the magazine end while a shuttle is being replenished in the top or first cell. The 4×3 box construction permits the weaving of a great majority of the so-called pick-and-pick fabrics. Loom speeds, work assignments, and efficiencies for automatic pick-and-pick operation on the PAPA loom compare favourably with the regular W-3 and W-3A installations.

The C-7 loom on view is 54 ins. between swords with a maximum reed space of 50 ins., and is equipped with a 20 harness, $\frac{15}{32}$ ins. gauge, cam-driven dobby. Sixteen of these harnesses are for weave indication, while the remaining four are used for the control of the shuttle boxes. The lay motion is almost entirely constructed of extruded aluminium alloy. The loom is equipped with push-button stations at both ends of the loom for starting, stopping and inching, permitting the completely inexperienced operator to manipulate the loom without difficulty through a new electric brake and clutch application incorporating a V-belt drive. Weft breakages are indicated through the C. and K. centre fork motion equipped with auxiliary electrical indication for even greater sensitivity. For loom stoppages due to weft breakages, the loom will automatically reverse to back centre. U.K. agents are A. E. Aspinall Ltd., Cumberland Street, Manchester.

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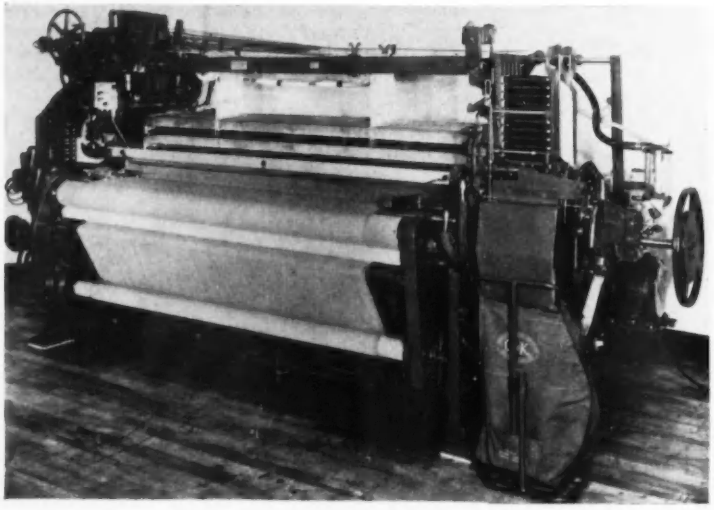
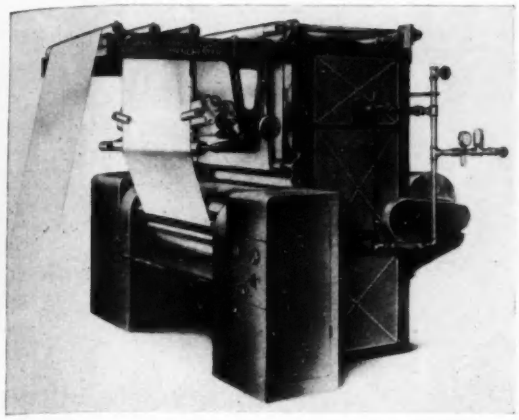
Drayton Regulator and Instrument Co. Ltd., West Drayton—Stand No. 1432. The exhibits here are designed to show the contribution the company has made, and is making, to heat processing, manipulative operations and steam trapping. Heat or chemical processing control is used in bleaching, scouring, sizing, drying, dyeing, stentering, conditioning—in fact any process depending on heat for its operation—and exhibits show that, not only is such control effective in producing a manufacture of consistently uniform quality, but also results in increased turnover and fuel saving. Control of manipulative operations such as spinning, etc., is confined to stabilisation in the working atmosphere. Examples of space heating and air conditioning control are depicted, and demonstrations are arranged to show the extensive trouble-free service to be gained from Drayton/Armstrong steam traps.



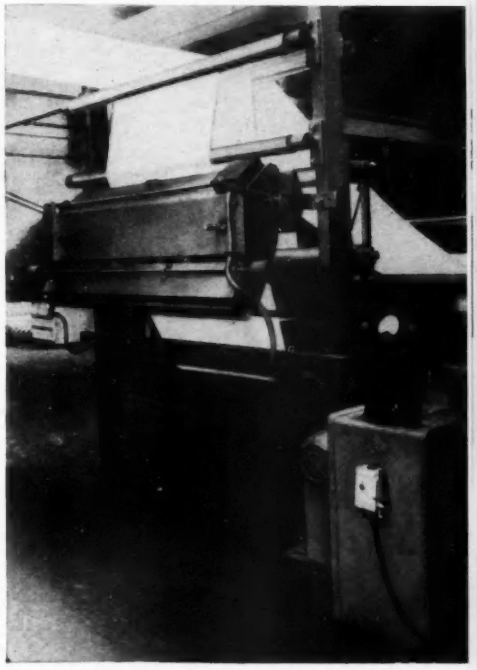
The C. and K. PAPA loom



(left) **Multi-cylinder flash steamer**

(Sir James Farmer Norton)

(right) **Automatic weft straightener with bowed weft control**



Sir James Farmer Norton and Co. Ltd., Manchester—Stand No. 1111. Three new machines on view have much to interest visitors. The latest model of the company's well-known automatic weft straightener is now fitted with more rollers to enable it to handle a wider range of fabric without risk of creasing and capable of correcting larger degrees of weft distortion. Another new feature is the addition of a bowed weft correction device. Angular distortion of the weft is detected and corrected automatically by an electronic apparatus. The machine will be built as a self-contained unit and will include inspection equipment but the machine is more usually employed before a stenter.

One section of a multi-compartment open width controlled tension washing machine is on view. The construction of the nips is the latest type with pneumatic pressure and the stainless steel wash box is fitted with an entirely new type of vibrator developed in conjunction with one of the largest firms of bleachers in this country. The vibrator consists essentially of an oscillator of special shape driven from outside the wash box. The design of the oscillator is such that there is considerable turbulance in the washing water and yet no risk of creasing. Furthermore, the oscillator mechanism is designed to provide a continuous circulation of the washing liquor.

The multi-cylinder flash steamer, consisting of a special two-bowl padding mangle followed by two large steam-heated cylinders surrounded by an endless neoprene blanket, has been developed principally for flash steaming fabric printed with colorsine colours. It has, however, a large number of other applications. When used for fixing printed colours the fabric is padded with a mixture of caustic soda and hydro-sulphite in the padding mangle and then passed straight on to the steam-heated cylinder where it is trapped against the cylinder by an endless blanket. The liquor in the fabric is flashed off as steam as soon as it touches the steam-heated cylinder, but the blanket prevents the steam escaping and also prevents oxidation. This machine has a number of other important advantages including considerable saving in steam, reduced steaming time and better colour value.

* * *

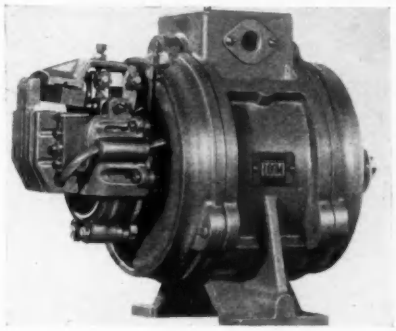
Dronsfield Brothers Ltd., Oldham—Stand No. 1210, show several new type machines. A new type grinding machine No. 270, with hydraulic traverse, for buffing rollers covered with synthetic or cork can be seen. This has been designed as an alternative to the standard No. 218 roller grinding machine, and will give a variable speed of traverse of the work roller to cover the wide range of synthetic materials used on spinning rollers. The machine accommodates rollers up to 20 ins. long and all diameters $\frac{3}{4}$ to 6 ins. Provision has also been made for adapting a friction driving attachment for driving ball bearing spinning rollers.

Dronsfields' card bend grinding machine No. 260 enables spinners to grind the flexible bends in position on the card. The latest type flat grinding machine displayed embodies many novel features for grinding the flats dismounted from the card. Another new machine is the condenser bobbin stripper No. 258 for stripping waste from condenser bobbins.

* * *

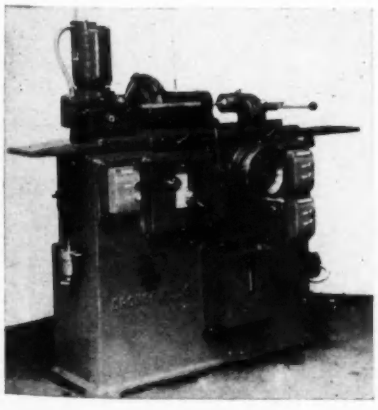
Brook Motors Ltd., Huddersfield—Stand No. 1428. The loom motors displayed are available in the usual eight-frame sizes with interchangeable centre rise height and foot fixings on most of the range, the alternative cradle mountings, and can now be fitted with 4 ins. magnetic brakes. For general driving purposes the new "C" type drip proof motor to B.S. 2960 : 1958, which is smaller than former types, will be exhibited along with the range of totally enclosed fan-cooled motors to B.S. 2083.

Fractional horse power motors are being extensively used on textile plant and a comprehensive variety of types will include the "Gryphon" range which is a versatile motor offered in a large number of speeds and enclosures; the "Merlin" range, a more competitive type also available in an

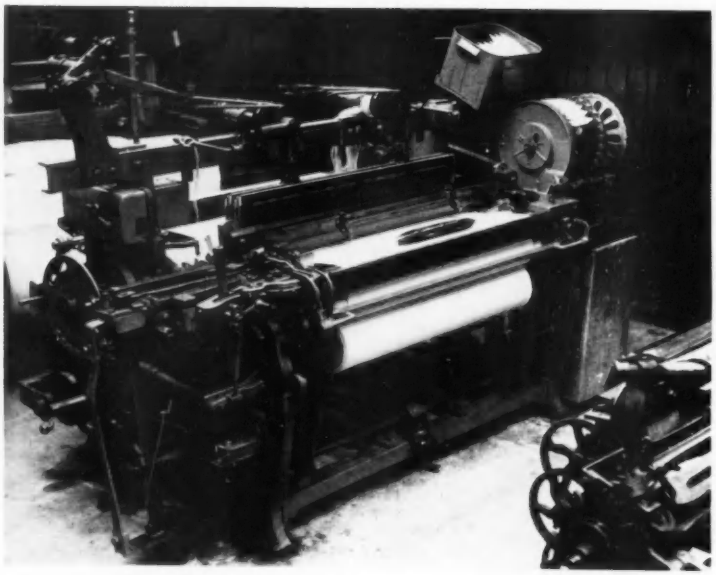


This motor can now be fitted with 4 ins. magnetic brakes

augmented selection of h.p.'s, speeds and enclosures; supplemented by the B.S. 42 fractional which is smaller than the other two types and has a wide field of application where space is limited. A larger fractional type, the B.S. 66, bridges the gap between the smaller size motors and the start of the industrial ranges. Control gear in a selected range of types will include the HAT, fractional horse power contactor, A and Z type starters covering direct switching, star delta, reversing, two-speed and multi-speed requirements. Push-button stations and limit switches will complete the section.



Dronsfield's No. 270 grinder



The Livesey AX model pirn changing automatic can run at 260 p.p.m.

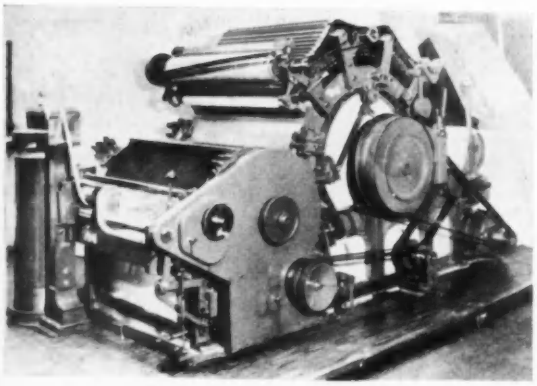
J. W. and H. Platt Ltd., Harrow—Stand No. 1310. Patent metallic card clothing in the form of various shaped hardened and tempered saw tooth wire is on view here and a Platt Bros. revolving flat card of the latest design can be seen in operation clothed with a new type of metallic wire on cylinder, doffer and flats and can be seen in action. These new metallic coverings are claimed to card efficiently all cottons including Sea Island, also man-made fibres of all types and blends up to 2½ ins. staple and 1½ den. A Tatham special roller type card clothed with metallic wire is also shown. This machine is fitted with the latest depositor type coiler, enabling the most static prone man-made fibres to be efficiently canned. This machine and clothing demonstrate to the trade one of the most discussed developments in carding, in that the fancy and fancy stripper are placed between the rollers and clearers; two before, and three following the fancy action. This new principle allied to the metallic clothing makes the special roller type card extremely adaptable. The clothing of both cards was fitted by Metallic Card Clothing Co. Ltd., Manchester Road, Bolton.

Henry Livesey Ltd., Blackburn—Stand No. 1517. The company's latest development in high speed automatic bobbin changing looms can be seen in operation. Known as the AX Model, this has been developed over a period of years and to run under mill conditions at extremely high speeds and will be demonstrated at 260 p.p.m. Several installations are now running at 230 p.p.m. and regularly give over one million picks in 80 hours, to show an efficiency of over 90%. This low built loom is compact and sturdy to give the greatest possible stability with a minimum of vibration. It is fully automatic and carries a 50% larger weft package than is normal for a prescribed shuttle size. Large diameter beams and cloth rollers make this machine one which must be recognised as a step forward in the field of cloth production. Fully automatic motions included reversing, stopping at shed level position, automatic let-off, and automatic warp stop motion. Push-button control also aids the operative.

The latest version of the company's cloth inspection and examining machine, also on view, incorporates a measuring motion for accurate recording of cloth length. The machine is completely versatile and is able to deal with cloth in all forms, inspect accurately and re-roll. A constant cloth speed is maintained throughout the examining period and the cloth comes towards the operative, so that faults can easily be spotted. An instant stop arrangement is included. Variable widths of cloth can be dealt with by simple adjustment. Other features are a three-speed gear box giving 15, 25 and 35 yds./min. throughout the roll. Anti-creasing motions are fitted.

* * *

Richard Threlfall Ltd., Bolton—Stand No. 113. This firm's exhibit is centred on a ringframe of new design, the Model TH3. Features of the machine include super-concentric rollers, 45° or 60° roller stands, low tension angles of drag and spinning angles, totally enclosed gearing end and roller gearing, chain drives, modern builder-motion. The machine is clear of internal working parts thus making it cleaner in use. Any type of high draft may be fitted. Extensive use is made of sintered metal bearings and ball bearings. The gearing end is a totally enclosed cabinet containing the motor, driving pulleys and belts. The cupboards are electrically interlocked to satisfy safety conditions. The roller gearing inside the gearing end is accessible by opening a sheet metal cover giving the operator complete access. The builder motion permits selection of a wide range of "picks" from a single builder wheel by the simple adjustment of a knurled knob situated at the side of the gearing end. The creel is specially designed to carry large bobbins of 15 ins. length × 10 ins. dia. prepared on the "Slibomatic" machine and from which counts may be spun with drafts as high as 150. Each of these bobbins carries on the machine shown two ends thereby permitting direct sliver spinning. The creel shown is only one version of several available. The ring plate mechanism has been re-designed and whilst retaining the use of pokers and poker tubes, the ring plates are now lifted by a special type of lifter tape neatly hidden behind each lifting poker.



(left) Platt flat card clothed with metallic clothing

(right Threlfall's T.H.2 ringframe has many new features

S. Dodd and Sons Ltd., Oldham—Stand No. 1422. On show for the first time in this country is the Dodd-S.R.R.L. opener-cleaner. Developed by the Southern Regional Research Laboratory, New Orleans, and jointly manufactured by S. Dodd and Sons Ltd., and Ircast Foundries Ltd., Whitworth. Extremely efficient in operation this machine opens, cleans and blends at high production rates and is claimed to remove about one-third of the trash in cotton, depending upon the type of cotton and trash. Compared with conventional cleaning machines, the Dodd-S.R.R.L. is said to have roughly twice the cleaning efficiency and one-half the loss of fibre in the waste, thereby achieving considerable saving in lint, whilst strength of fibres is maintained and no damage or nepping occurs. The standard machine will supply cotton for two scutchers at the rate of 1,000 lbs./hr. and the larger machines with proportionally greater production are designed to feed three or four scutchers. Used in conjunction with preparatory feeders, the opener-cleaner is an excellent blender and for cotton, wool and synthetics is a machine which should considerably increase the efficiency of present opening ranges.

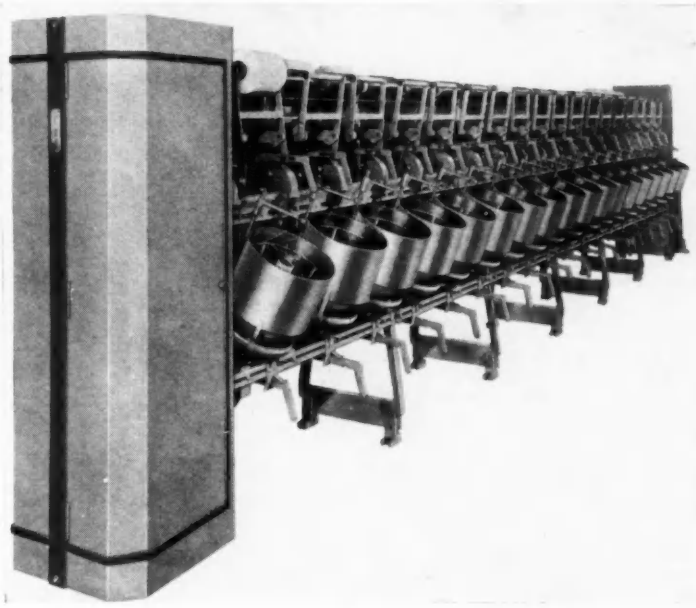
Of considerable interest also is the short frame version of the "Westmorland" doubler on view and the Dodd/Whitin high drafting equipment. A range of all types of plain and fluted rollers is displayed by Abel Lees and Sons and Wm. Hampson Ltd. have an excellent display of heald and reed making, wire rolling and polishing, varnishing, heald knitting machinery, etc. All types of flyers, spindles and tape drive equipment forms the detailed arrangement shown by Wm. Ryder Ltd. and Wm. Bodden and Son Ltd. have a fine selection of spindles and flyers of all types.

* * *

George Ellison Ltd., Birmingham 22b—Stand No. 2505. An interesting selection includes a motor-operated rotor starter, on show for the first time, available for slip ring induction motors of up to 1,000 b.h.p. Starter dials may be for either 300 or 400 amps. and the maximum slip ring voltage is 1,300. The operating motor is a three-phase unit geared for 30-sec. starts as standard. Motors for 45 and 60-sec. starts may also be provided. The moving contacts are heavy rollers mounted on a copper trunnion fixed to a circular brass casting that forms the star point. Pressure springs force the rollers against the fixed contacts. The rollers are free to rotate and swivel, producing a self-wiping action and ensuring an ever changing surface of the roller to the fixed contacts.

Also on show are The GEOF 400 amp. fixed mounted circuit breaker and the GEO 600 amp. withdrawable type breaker, also on view, combine robust construction with simplicity of design. Each individual main and arcing contact is reversible and only two set screws need to be removed to reverse a complete moving contact assembly. A maximum of three series wound over-current coils, with setting of from 90 to 200% full load current and an undervoltage coil may be fitted. A trip-free handle on over-current is fitted as a standard feature.

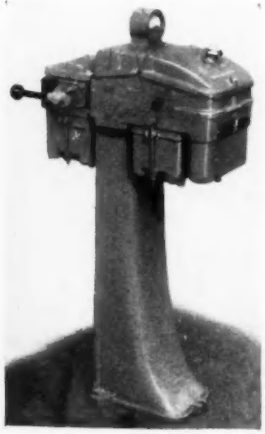
Worthy of mention are the 20 amp. direct-to-line starters group mounted on a busbar chamber. The starters have integral isolators and back-up fuses and are ASTA tested to B.S.936 : 1940 and ASTA No. 9. They have a proved breaking capacity of 34·3 MVA at 600 volts.



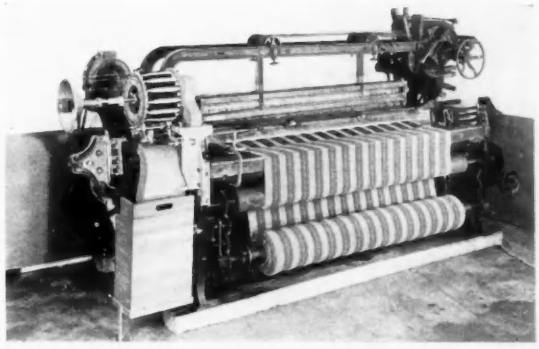
"Westmorland" doubler (S. Dodd and Sons)

George Fischer Ltd., Schaffhausen, Switzerland—Stand No. 1108. Well-known makers of automatic pirn changers for conversion of single and multi-shuttle looms for cotton, silk and wool, they show four types out of their conversion programme. One is a single shuttle pirn changer conversion on a 45 ins. reedspace Butterworth and Dickinson silk loom, for weaving all deniers of silk, rayon, acetate, nylon and other synthetic yarns. The second is a pirn changer conversion for cotton looms on a 48 ins. reedspace overpick Lancashire loom.

The company also feature the new two-colour pick and pick automatic pirn change conversion on a Dobcross loom, weaving two colours of weft with up to 5 shuttles. This new motion will be of particular interest to woollen weaving mills. A new underpick circular box loom for cotton, with a reed space of 63 ins., incorporates a new patented underpick motion with a bowed picking stick at the circular box side and a new multi-colour pirn changer for weaving up to 6 colours, of which 4 are changed automatically and 2 by hand.



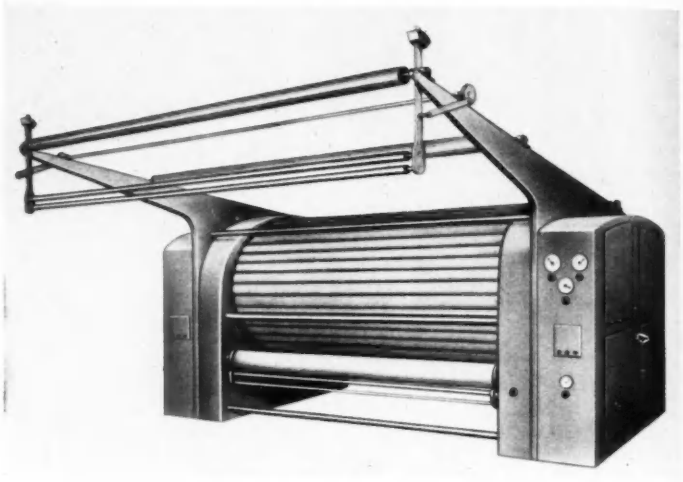
(left) Ellison direct-to-line starter and reversing switch mounted on same panel



(right) Fischer conversion on a Dobcross loom for weaving two colours of weft

T. W. Riley (Rochdale) Ltd., Globe Machine Works, Rochdale—Stand No. 1213. This firm's new 36 roller raising and felting machine, Model RF/2, has a working width of 90 ins. and the range of cloth speeds available, is from 15 to 50 yds./min. All controls are mounted in one panel and as the cloth speeds are advanced so the amount of work done by the pile and counterpile rollers is automatically adjusted. The makers claim that this machine will produce a wide variety of finishes on all types of fabrics constructed for raising. This machine can also be fitted with a shearing attachment.

In addition, the company show their new "John Bright" heat setting and dipping machine, which is designed for the heat setting of tyre, belting, sewing and other industrial yarns and for the production of low elongation spun thermoplastic yarns. Dipping can be applied to all types of cords. The machine is capable of dealing with a range of deniers from 840 to 5,000 (1's to 6's cotton counts). Machines are now being constructed to deal with yarns up to 30,000 deniers.



Riley's Model RF/2 36-roller machine

* * *

Jagri G.m.b.H., Gescher, Germany—Stand No. 1109. The raising of pressure in their pressure yarn dyeing machines by a weighting system is one feature of the equipment shown. The design also incorporates modifications developed with the object of economising on liquor consumption, power consumption and dyeing time. Jagri refer to their machine as a "static pressure dyeing machine" and the device for obtaining the static pressure is interesting. A small pressure cylinder with piston delivers the necessary pressure without additional energy and without additional cost. After filling the dyeing vessel, including the pipe lines, with dyeing liquor, the static pressure may be adjusted by means of weights applied to the piston.

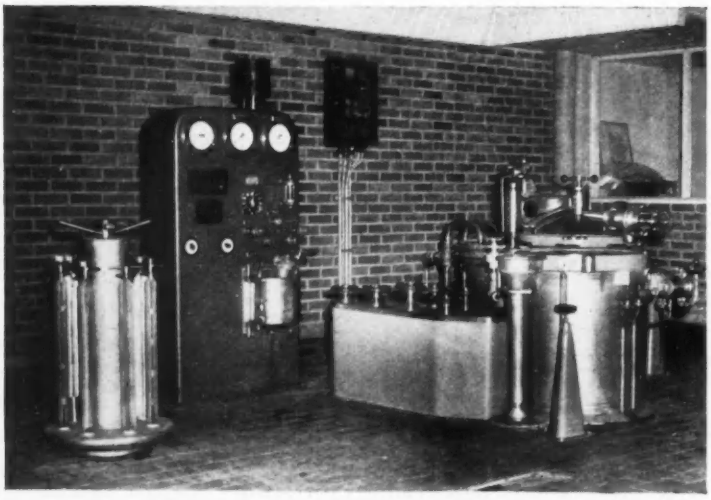
The pressure is kept constant during the dyeing process by a special control and a liquor reversing system is used consisting mainly of a stainless steel arch pipe lying centrally in the bottom of the vessel. The change of liquor circulation from inside to outside and outside to inside is obtained by simply reversing this special device. The indirect heating coil lying in the bottom of the vessel is arranged above the liquor reversing system and is easy to clean. The machine is equipped with a special sampling device which enables samples to be taken directly from the dyed batch—also at temperatures above 100°C.—without interrupting the dyeing process.

All instruments, valves, etc., are arranged on one board for easy operation and a special panel holds all control instruments. A special liquor observation glass is fitted into the panel to control the flow of the dyeing liquor. Jagri also show a static pressure laboratory dyeing machine operating on the same principles as the standard dyeing machines and suitable for dyeing all kinds of material. Agents in the U.K. and Eire are Barke Machinery, 100 Portland Street, Ashton-under-Lyne.

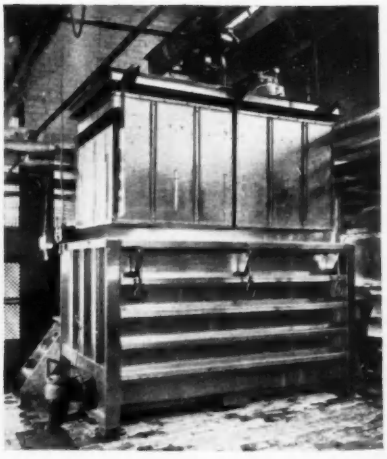
* * *

Samuel Pegg and Son Ltd., Leicester—Stand No. 1507 - 1603. Dyers and finishers will find much that is new and of considerable interest. The Pegg high temperature single package dyeing machine Steverlynck system, suitable for all temperatures up to 270°F. is equipped with reversible pump and the Pegg Barrow high temperatures multi-purpose laboratory machine is equipped with 6 pots to dye six 10 gram samples at one operation at all temperatures up to 270°F. A high temperature pressure dyeing machine, Steverlynck system, capacity 24 packages or 50 lbs., fitted with reversible pump, is exhibited, also a Pegg high temperature pressure dyeing machine, Steverlynck system, capacity 144 packages or 200 lbs.

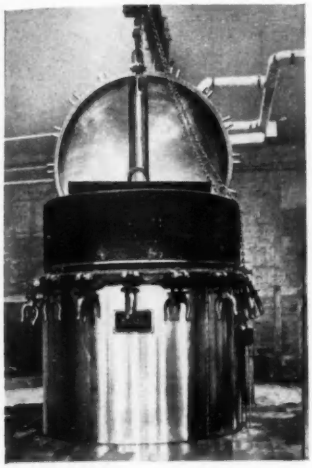
The firm's rapid drying machine for packages, totally enclosed, recirculating system, capacity 200-300 lbs., can be seen and a high temperature double pole double compartment hank dyeing machine, temperature limited to 216°F., for dyeing all types of fibre in hank form. Additional



Control panel of the Jagri pressure dyeing plant



Pegg high temperature double pole hank dyeing machine



Pegg high temperature loose stock dyeing machine

machines include a high temperature loose stock dyeing machine, a whirlwind hydro-extractor fitted with 40 ins. stainless steel basket, and the power loader, designed to load or unload knitted fabric from machines, etc.

* * *

Daniel Foxwell and Son Ltd., Cheadle—Stand No. 1405. Designed to roll on to rolls, tubes or pegs the firm's well-known rolling-up machine exhibited is fitted with the "Foxwell" pneumatic cloth guider which ensures accurate rolls at high speeds free from curls and creases. The guider can be fitted if desired with special valves which can guide one selvedge only perfectly accurately and evenly, irrespective of any variation of the width of the fabric to be guided. Standard machines are designed to make rolls up to 40, 50, 60 and 80 ins. dia. and up to any width. Measuring arrangements can be supplied if required.

Cleanly designed and robustly constructed the plaiting machine on view deals easily and efficiently with all types of fabric, from the lightest to the heaviest. Silent in operation, it is easy to adjust for different lengths of plait. This machine can also be supplied with pneumatic guiding and measuring arrangement if desired. An unrolling, re-rolling and measuring machine to take packages in all forms, i.e., on rolls, pegs or lining boards and re-roll it in any of these ways in also featured on the display.

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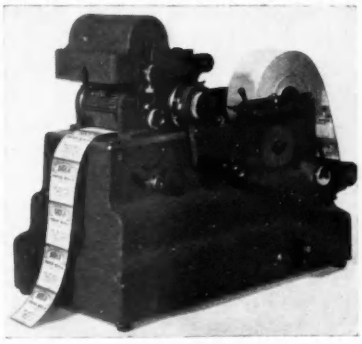
Dapag (1943) Ltd., London, E.C.4—Stand No. 1016. Users of labels, tickets and tags can try their hands at printing them with the "Tickopres" machines which either print or overprint production-control, identification and other detail on plain or pre-printed labelling. Both letterpress and metal plates or rubber stereos are used. The manufacturers are showing two new models. Fully automatic, the "Tickopres A3M" overprinter makes



The new "Tickopres A3M" overprinter makes nearly 10,000 impressions an hour (Dapag (1943) Ltd.

nearly 10,000 impressions per hour. Printing on the reel, this machine produces labels, tickets and tags—including heatseal, self-adhesive, pinned, clipped and other varieties—of up to $2\frac{3}{8} \times 4\frac{1}{2}$ ins. Its manual counterpart, the "Tickopres A3" is designed to facilitate easy conversion to electric operation by the insertion of a motor drive in its base. Another new electric-driven model, the "Tickopres (Imprima) VM," trebles its predecessor's speed by giving 6,000 impressions per hour on single and flat items.

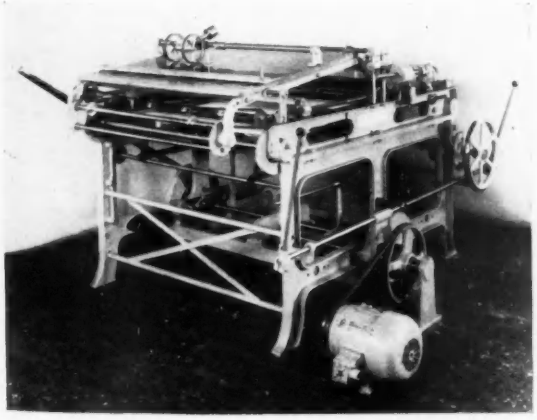
* * *

Cooper Bros. Ltd., Burnley—Stand No. 1614. One of the main exhibits is the range of "Taco" lightweight alloy beams. Produced to high precision standards offering minimum weight, true running, long life and high operating speeds the "Taco" MK 1 weavers beam is for traditional fibres; MK 11 is specially strengthened against high pressures. Another exhibit is the "Taco" warpers beam, produced in high tensile light alloy with aluminium flanges. Two models are available, the standard beam for speeds up to 400 yds./min. and the high speed model for up to 800 yds./min. Details of special services the firm offer are also available on the stand. These are the "conversion" techniques by which looms can be made capable of automatic operation. Another important item of equipment on view is a warp stop motion. In addition, the display features special flanges, let-off motions, loom widening service (in some instances, up to 20 ins. wider), die castings, and many other items of special interest.

* * *

Meiners' Optical Devices Ltd.—Stand No. 1409. A newcomer at the exhibition, this company is developing devices which will help to increase productivity in the mills. The best known is the thread illuminator for spinning machines which is used primarily where either coloured yarns or very fine counts are being spun, but also in doubling, twisting and up-twisting. It is now shown in its finally developed form on Meiners' stand, and also on most of the spinning frames on show. The illuminator is claimed to increase productivity (*a*) by saving idle spinning time, (*b*) by reducing waste and (*c*) by improving quality, (*d*) by reducing cost and (*e*) by improving operatives' working conditions.

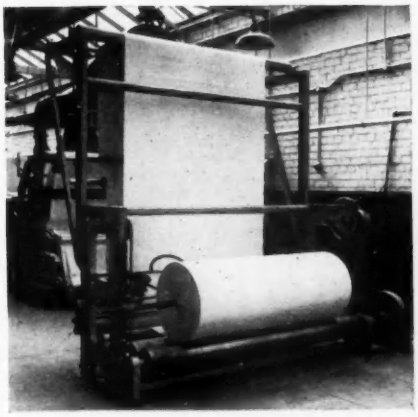
The company also show "Loom-Lite" which basically is similar to the thread illuminator in that it enables the operative to see distinctly certain parts of the machine which normally are not clearly visible. The "Loom-Lite" throws a concentrated beam of light horizontally into the loom and thereby gives the operative mending a broken warp better vision. This is particularly important where dense or coloured fabrics are being woven, as these are the fabrics which are normally the most costly. "Loom-Lite" is also important in its effect on the operative's attitude to work. Investigations have shown that most errors occur towards the end of a working day, particularly in winter, and by reducing fatigue in the mill, the "Loom-Lite" is a tremendous help in avoiding errors.



(left) New plaiting machine

(Daniel Foxwell and Son Ltd).

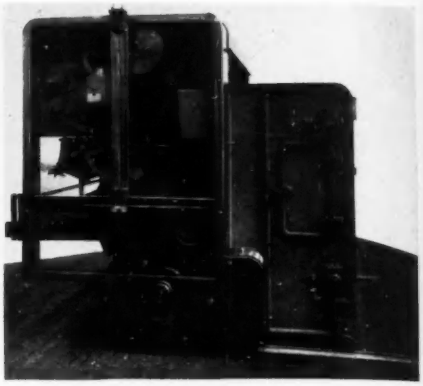
(right) Rolling-up or surface batching machine



(left) New pattern tape condenser

(William Tatham Ltd.)

(right) New pattern automatic feeding machine



William Tatham Ltd., Rochdale—Stand No. 2201. A three-roller pattern card specially developed for handling coarse denier rayon staple and synthetics as used in the tufted carpet industry is featured here, together with a new model automatic feeding machine for woollen, etc., cards and a new pattern four-tier leather tape condenser. The three-roller card is capable of giving three to four times the production obtained on a normal cotton type card and it has considerable blending power. The feed is normally by two large diameter scutcher laps or an automatic hopper can be used if preferred. Delivery is to twin coilers accommodating 16 or 18 ins. dia. cans. Special roller stripping is employed to the doffer.

In the new automatic feeding machine a supersensitive scale pan is provided, mounted on self-aligning knife edges and set at an angle in relation to the card feed rollers. Immediately the correct weight is deposited in the pan an electro-magnetic clutch driving the spiked lattice operates, causing the latter to stop and at the same time closes twin shutters placed immediately over the scale, thus isolating same. In the hopper section of the machine a device regulates the speed of the spiked lattice according to the wool content, so that uniform quantities of material are passing forward at all times. When approximately half the weight has been delivered to the scale pan a further control reduces the speed of the spiked lattice so that the final complement of the weigh is delivered very gradually.

In the new four-tier tape condenser attention has been paid to complete steadiness in operation even at the highest speeds, this having been ensured by the introduction of a greatly improved all-roller bearing rubbing motion, the drive to which is now taken directly from the main gearing of the machine on the opposite side of the condenser. In other words, the normal rope drive from the card cylinder, has been eliminated. All rollers—both tape and rubber—are mounted in self-aligning bearings.

* * *

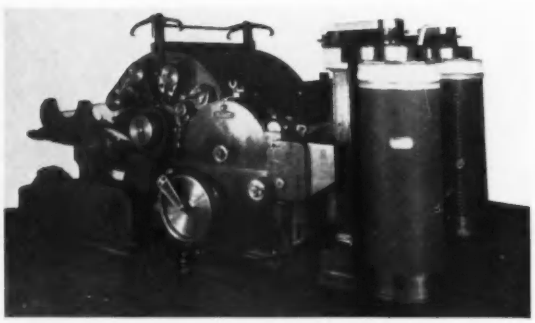
Weston-Evans and Co. Ltd., Clifton, Manchester—Stand No. 1112. The steam-heated drying cylinders shown are all fabricated construction with stainless steel shell and condensate removal buckets arranged to remove condensate for either direction of rotation. These cylinders are designed to take higher steam pressures, and are applicable to all types of fabric drying, setting, warp sizing, etc. machines. Syphon pipe condensate removal is an alternative for normal speeds. The standard dollheads on view are for use with drying, setting, or cooling cylinders. The rotating steam point is metal to adjustable spring-loaded metal contact, the spring-loaded metal nose being stationary. In this manner, automatic compensation for wear, expansion and contraction, is obtained. The company's ball bearing dollheads incorporate double-row self-aligning ball bearings in place of the plain bearing thus minimising journal friction.

Single steam-heating nozzles and duplex steam heating nozzles are displayed, the latter applied when the rotary steam joint is required to be separate from the cylinder journal bearing, thus enabling steam to be introduced and ejected at the same end of the cylinder, the other end being closed. The calender bearings displayed are plain type half bearings for bottom and top bowls normally in white metal, provided with seals, accommodating for end thrust and having self-aligning characteristics. A stainless steel jacketted size pan of 50 galls. capacity is accurately thermostatically controlled with motorised variable speed mixer head. All ancilliary services and pan are completely enclosed, with centralised control panel presenting a clean and pleasing exterior.

* * *

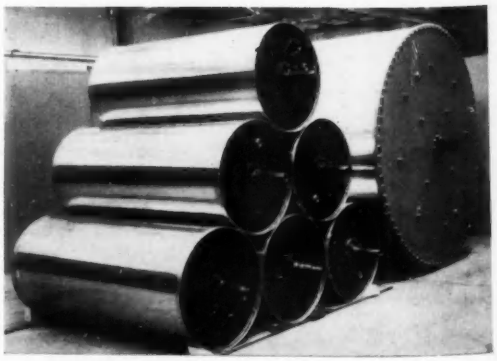
Cook and Co. Ltd., Manchester 2—Stand No. 1303. The constant tension continuous winding tester shown here is for routine mill testing over a wide range of yarns. It can be used for determining whether a yarn meets a required standard. The principle is that of testing long lengths of yarn at constant tension.

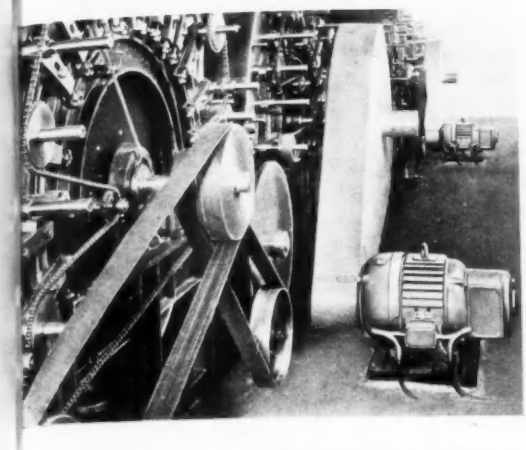
Spinning overlookers and managers will undoubtedly be interested in a new power-driven combination ring spindle oiler and extractor. Manually-operated types are also displayed. The wide range of knotters displayed cover practically all counts and qualities of yarn used regularly. The range includes a fisherman's and the single and double weaver's knotters. A range of traveller tools for spinning and doubling rings can also be seen. All types of mechanical yarn clearers, including the well-known comb and plate types, are displayed; also the "Qualitex" electronic slubcatcher, an electronic device fitted to winding frames to ensure the highest possible quality. Cleaning of the yarn takes place with a minimum of contact, thus avoiding roughening and damage to the yarn.



(left) Tatham's three-roller card

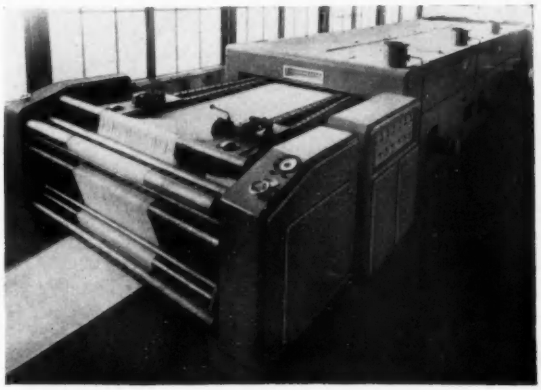
(right) Stainless steel drying cylinders (Weston-Evans and Co. Ltd.)





(left) Woollen carding set with synchronised drive by M.V. type M.Z. 5h.p. slip ring induction motors

(right) Full length view of the Trokentechnik stenter



Metropolitan-Vickers Electrical Co. Ltd., Manchester 17—Stand No. 2004. The company's exhibits consist mainly of squirrel-cage motors and control gear for textile machinery. Of particular interest is a working model of a synchronous drive for cards; this was constructed by apprentices at the Metropolitan-Vickers apprentice training school. Another working exhibit is an electronically-controlled Ward Leonard drive for full-fashioned hosiery machines and for certain other applications requiring automatic control. The control gear items include contactor starters for card duty, push buttons, selector switches and indicating lamps.

Type L motors are specially designed for the individual loom drives. They have a low permitted temperature rise and high starting torques to suit the arduous loom cycle. The motors are designed with electrical operating characteristics in two classifications. Those known as Class C motors are supplied for clutch-started light and medium looms. For the direct starting of heavier looms (the motor starting and stopping with the machine) Class D motors are used with Type PSB/D loom pilot switches. These characteristics ensure adequate torque when starting the loom and thus provide a strong first pick from any position of the sley. Type L motors are also suitable for certain other drives. They are made in four frame sizes, the 50-cycle ratings extending over the range from ½ h.p. to 1½ h.p. at a speed of 950 r.p.m. or 730 r.p.m.

The M-V full fashioned hosiery machine drive has been re-designed to employ a flux resetting magnetic amplifier instead of thyratrons to excite the generator field. It provides eight pre-selected speeds, each of which can be set at any point in the range by means of potentiometers on an enclosed panel, locked to prevent unauthorised interference. Any variations in motor speed due to changes in mains voltage or load are automatically and very rapidly corrected, and a forward and reverse current limiting feature provides controlled acceleration and braking.

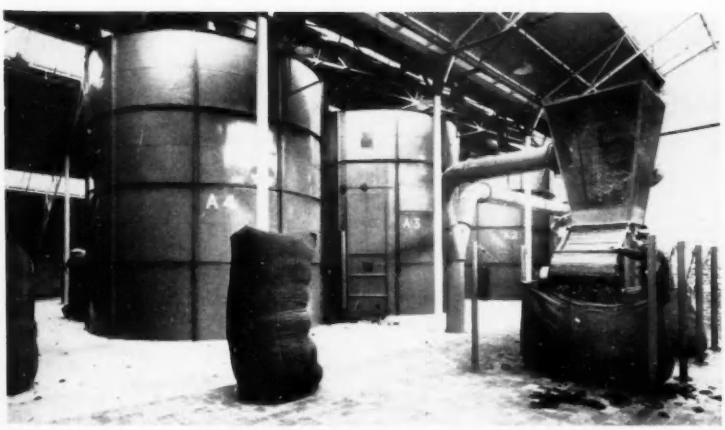
M-V synchronised drive equipment for a multi-section woollen carding set consists of a slipring motor for each section, an 11- or 19-notch drum controller for centralised control of all motors, a common rotor resistance unit, "emergency stop" push-button stations and a contactor box containing the main line contactor and overload relays. The resistance unit incorporates a permanent resistance to provide adequate synchronising torque between the motors, a starting resistance and, when required, a suitably graded resistance to give several steps of speed control down to about 70% full load speed. Any section may be run independently, and reverse rotation of the cylinders, required when grinding, is obtained by means of "off" load reversing switches mounted on the contactor box and padlocked to prevent unauthorised or inadvertent operation.

* * *

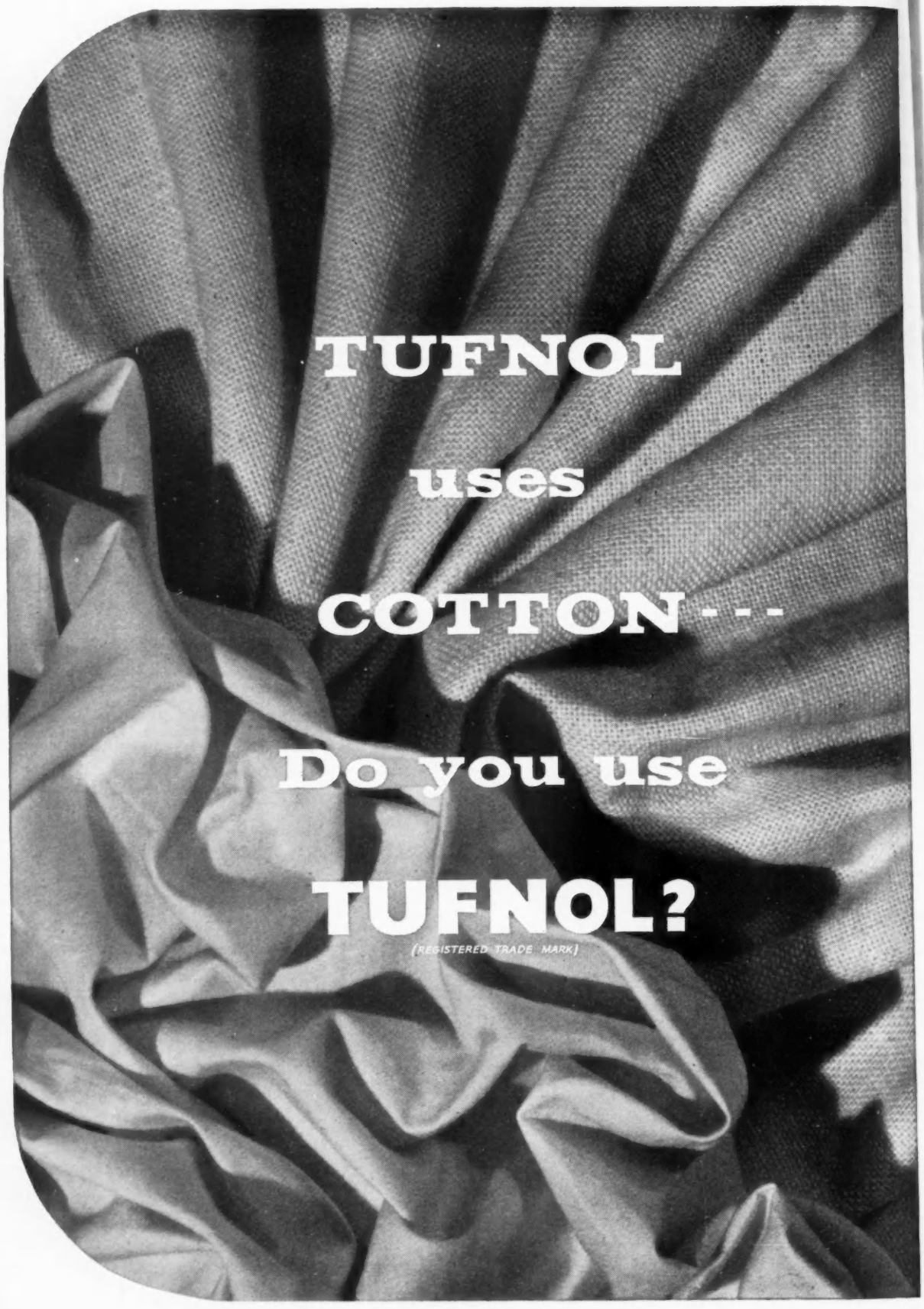
Trockentechnik, Kurt Bruckner K.G., Stuttgart, West Germany—Stand No. 2001. The high capacity jig stenter, demonstrated by model parts and large scale photographs, is soundly constructed with horizontal chain guide and can be supplied for use with heavy cloths or for the most delicate fabric; it can also be adapted for coating and finishing plastic materials. Of special interest is the construction of the combined pin/clip chain (for speeds up to 200 yds./min) which has needle roller bearings. When working with clips the fabric is safeguarded from damage by the pins. In the drying and setting chambers the fabric floats suspended between opposing air streams. The air volume is precisely controlled independently in each drying compartment, all of which are easily accessible through large lateral doors for cleaning and maintenance. Full details are also available of the complete range of Trockentechnik equipment. The U.K. agents are Coates Smith Ltd., 33b Curzon Street, Derby.

* * *

Pneumatic Conveyors (Hudd.) Ltd., Huddersfield—Stand No. 1618. The "Atomist" oiler on view is conveniently situated between the last opening machine and sheeting up (or discharge to card bins). It allows blending and opening to be carried out before oiling, thus reducing fettling time and ensuring clean conditions in bins, machines and ducting. The modern control panel and "barrel emptier" are particularly interesting, whilst the "Auto-Flow" control unit has been developed to provide a means of controlling the oil by the flow of wool to make the equipment as automatic as possible. Other exhibits include the P.C. sheeting-up machine, all types of dust extraction equipment from large installations, whether for flock, wood refuse or dust, down to the small package unit which is on show, also waste end collectors which have proved exceptionally reliable in operation, the main features being the fan unit of cast aluminium and stainless steel.



Sheeting-up machine with steel blending bins in background (Pneumatic Conveyors (Hudd.) Ltd.)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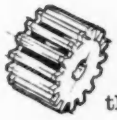
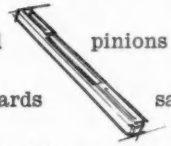
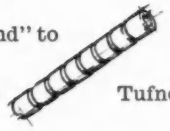
Tufnol is a remarkable material  produced from Cotton Fabrics. Many components in the Textile Industry give far better service when made of Tufnol. For example, gear wheels, racks and  pinions drive quietly with the minimum of vibration; raceboards save replacement costs; dye jig bearings resist corrosion; bobbins, quills or pirns withstand rough usage; shuttles do not splinter or warp; picker bushes increase the life of pickers and spindles; truck wheels save wear on floors; pulleys and rollers are "kind" to  other materials. Remember when you use Tufnol it means more business for the Textile Industry. Tufnol helps the Textile Industry in many other ways—perhaps it can help you? Come and see us.

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at the TEXTILE MACHINERY AND ACCESSORIES EXHIBITION

BELLE VUE, MANCHESTER, OCTOBER 15—25, 1958

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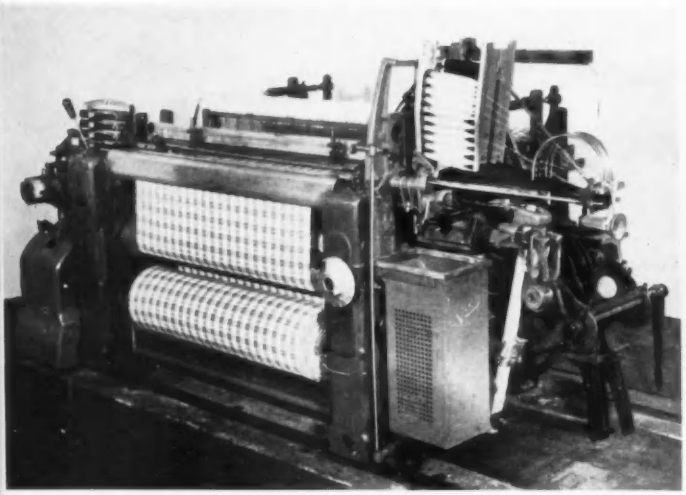
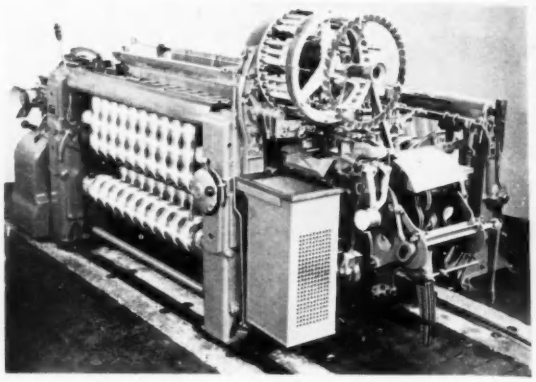




(above) Saurer 4/1 silk loom, Type 100W

(left) Saurer 4/1 automatic cotton loom, Type 100W

Adolph Saurer Ltd., Switzerland—Stands 2105/2206. The Saurer 100W type automatic broad cloth loom, 200 cm. reed space, equipped with tappet motion, single shuttle, fully automatic pirn-changing motion is weaving cotton fabric on this stand. The 100W automatic type broad cloth loom, 130 cm. reed space model is equipped with 16 shaft positive dobby, four shuttles, fully automatic, multi-coloured magazine for automatic pirn-changing and is specially suited for weaving rayon, nylon and other synthetics. The 100W automatic type broad cloth loom, 180 cm. reed space is equipped with dobby, four shuttles and fully automatic multi-colour magazine for automatic pirn-changing. The 100W large shuttle, semi-automatic type broad cloth loom, 230 cm. reed space model is equipped with 21-shaft positive dobby, seven shuttles and pick-at-will motion for weaving suiting. A complete automat unit of the company's embroidery machine is shown with various photographs and models. Represented by Crowther Ltd., Thurmaston, Leicester.

* * *

Dunlop Rubber Co. Ltd.—Stand No. 1312. Products from three Dunlop divisions are shown. From the Engineering Components Division is a range of standard couplings and mountings, together with components made from Duthane, a rubber-like synthetic material based on polyurethane. These include loom components which are subject to heavy blows and severe abrasion: pickers for looms, shuttle tong support pegs and bonded rollers. Duthane has very great tensile strength, excellent bonding properties, and high resistance to oil. Exhibits from the General Rubber Goods Division include covered rollers for textile machinery, spreading jackets and a range of containers made from Fortiflex, Dunlop's rubber resin compound which combines toughness with flexibility. A representative selection of V-belts is also shown.

* * *

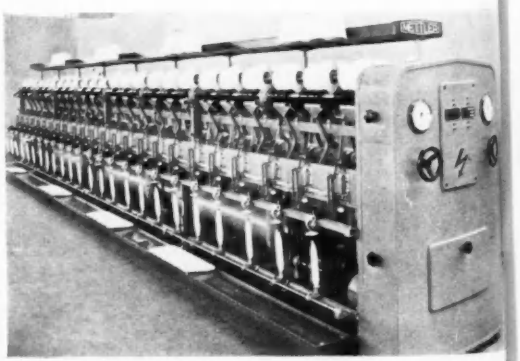
Moore and Avery Ltd., Todmorden—Stand No. 1803. This display includes the No. 3 combination automatic warp reaching-in machine which incorporates a No. 1 unit suitable for slashed cotton warps using striking comb for cotton, woollen and worsted yarns without lease; also the No. 2 unit for end-and-end lease, suitable for cotton, woollen, silk and rayon yarns. These machines can be made in varying widths from 50 up to 110 ins. reed space, but the machine exhibited is 62 ins. In addition to speed and accuracy—in themselves labour saving—the machines also serve to relieve a problem of labour shortage by rendering juvenile reachers-in unnecessary.

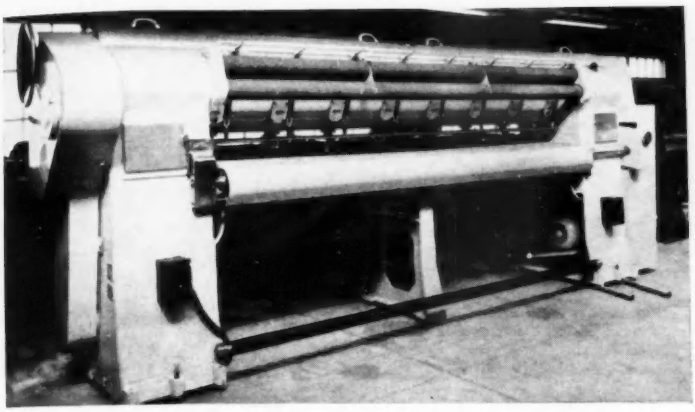
* * *

Fr. Mettler's Sohne, Switzerland—Stand No. 2104. The high speed multiple end winder with 24 heads, double sided, Model FM is specially constructed to assembly four ends of cotton yarns on to cheeses and for single end winding on to cross-wound conical packages up to 4° 20′, 6 ins. traverse. The high speed electric singeing machine on view of 12 spindles, double-sided construction is suitable for cotton but also equipped with special burners and brushes for singeing nylon or "Terylene" yarns. Dust exhaust system and variable speed drive 0-800 yards per minute. A hank to cone/cheese winder displayed has special individual spindle drive and anti-entanglement brake for cotton, linen or woollen yarns. Represented by Crowther Ltd., Thurmaston, Leicester.

(left) The Moore and Avery automatic warp reaching-in machine

(right) Mettler's electric singeing machine





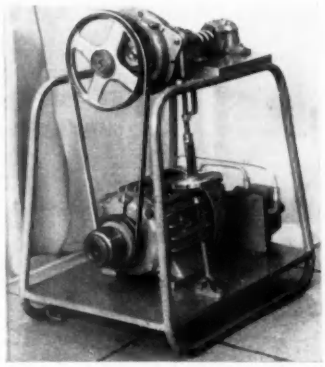
A view of the 9 ft. multi-gauge, Model 125, tufting machine shown by British Tufting Machinery Ltd.

British Tufting Machinery Ltd., London, S.W.1—Stand No. 1121. Many firms have been deterred from entering the field of tufted carpet manufacturing by the huge production figures which this machine is capable of achieving, but having regard to the different demands of the British and European markets for tufted carpets compared with those in the U.S.A., the technical staff of British Tufting Machinery Ltd. have developed a new conception in carpet tufting. Versatility has been the keynote in their design. The first public demonstration of this new development in a new field is on view and visitors can see one machine capable of turning out a wide variety of carpet qualities. Not only are the usual variations of density and pile height obtainable, but the same machine will produce different qualities ranging from the lowest loop pile to the newest $\frac{1}{8}$ in. gauge cut pile: the former for qualities similar to haircord and the latter for the highest grades of machine-made carpets with densities of 100 tufts to the square inch and greater. The makers state that tufted carpet of a quality equal, if not superior, to top-grade Wiltons is already being produced on this new machine. The new machine incorporates all the developments and refinements from the past few years and includes the now well-known horizontal looper mechanism.

In addition to the multi-gauge tufting machine, photographs and models of the latest latex spreading and drying machines are available, together with details of the newly-developed machines for coating and impregnating textiles with PVC and other synthetic compounds.

* * *

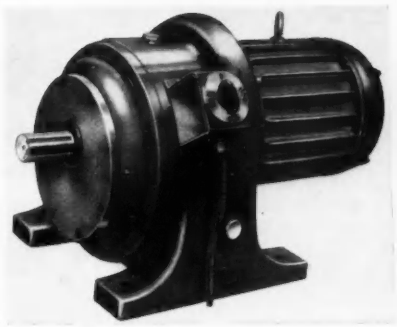
Crofts (Engineers) Ltd., Bradford 3—Stand No. 1402. Mill engineers and all concerned with power transmission will be well rewarded by a visit to this display. The precision-made exhibits include a shaft mounted gear unit with variable speed pulley drive; a selection of flexible couplings, friction clutches, magnetic clutches and magnetic brakes. A 5 ins. crs. inverted combined spur and worm geared motor unit is displayed also a 3 ins. crs. universal "D" mounting combined spur and worm geared motor unit. The Type C-JR variable speed control unit and No. 0 variable speed motor gear, flange mounting type can be seen, also a special multi-speed gear unit with built-in magnetic clutches for instant speed changing. The Type No. 3 two-speed multi-speed geared motor unit has many applications and another feature is a $7\frac{1}{2}$ h.p. motorised $6\frac{1}{4}$ crs. shaft mounted worm gear unit. Standard "Ritespeed" geared motor units in various mounting positions are on view together with standard universal mounting worm reduction gear units and standard worm reduction gear units. Additional features include V-rope drives, "Powergrip" timing belt drives, roller chain drives, standard stock machine cut spurs and bevel wheels, No. 4C hydraulic coupling drive unit, also a shaft mounted gear unit with built-in roller backstop.



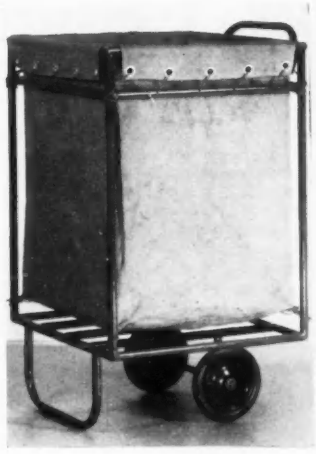
The unit above is a No. 2 single reduction shaft mounted gear unit driven from 960 r.p.m. motor

* * *

Thompson Textessories Ltd., Lancaster—Stand No. 1302. Specialising in the manufacture of high quality accessories to suit the particular purposes of customer, the exhibit comprises trays (principally in duralumin) for all types of textile package e.g. pirns, bobbins, cones, cheeses, spools, etc., etc., also containers (principally in duralumin) for most of the packages mentioned. These containers are particularly suitable for conditioning purposes as the material is rustless, in addition to being light and strong. These containers can be made to any dimensions, either rectangular or tapered, and both types can be fitted with stacking device and/or lids. Optional extras include tare-weighting and/or label holders, and in addition if required trucks or trolleys can be made to measure to transport the containers within the mill. Trucks (principally in tubular steel) are on view for bobbins, cones, cheeses, spools, beams, etc., made to suit the particular purpose of customers. The type of peg, number of pegs, distance between centres, etc., can be varied as required. A wide range of wheels and/or castors is available for these trucks. Other exhibits include mill tables, packing cases (non-expendable type), steel racks, weavers units, and many other similar accessories.



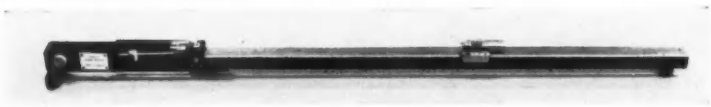
Multi-speed gear unit fitted with built-in stationary field type magnetic clutches (Crofts Engineers Ltd.)



Canvas-bag truck (Thompson Textessories Ltd.)

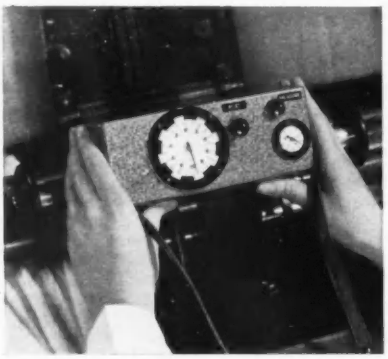
* * *

Worcester Royal Porcelain Co. Ltd., Tonyrefail—Stand No. 1027. The central feature of the stand is the "Regalox" range of hard ceramic textile guides, which, with a hardness between diamond and sapphire, are exceptionally resistant to wear and possess excellent physical properties. It is claimed that the ceramics are unaffected by high working temperatures, remain dimensionally stable under all conditions and are highly resistant to both mechanical and thermal shock.



The "Shirley" crimp testing Instrument

Shirley Developments Ltd., Manchester 3—Stand No. 1425. Information is available about the full range of over 50 "Shirley" instruments, machines and chemicals developed by the British Cotton Industry Research Association. Many are displayed either on this stand or on the stands of licensed manufacturers. The



"Shirley" R.S. meter

fibre quality section includes instruments for determining the length fineness, maturity and micronaire value of fibre and instruments of particular interest are the "WIRA" fineness meter (cotton model), the "Shirley" photo-electric stapler, which can be used by a quickly trained operator to provide reliable estimates of the staple and effective length of cotton. Other instruments shown are the "Shirley" comb sorter, "Shirley" cantilever microbalance and "Shirley" microscope projection unit.

Spinning equipment is represented by instruments for counting neps in card web and three instruments developed for detecting defects in drafting systems, the "Shirley" RS meter, roller vibration detector and roller eccentricity testers. Information is also available about the "Tweedales-Shirley" hopper opener, "Shirley" beater compartment and "Shirley" opener.

Instruments for weaving on show include the full range of "Shirley" loom gauges, the weft unwinding tension meter and the latest version of the "Shirley" crimp tester. The hosiery manufacturers will find the constant tension winding tester, the two friction testing instruments and the four-foot crimp tester of particular interest.

* * *

Spooner Dryer and Engineering Co. Ltd., Ilkley—Stand No. 1114. The main exhibit is a scale model of a high velocity drying unit which has proved very successful in its application to existing clip or pin stenters. The machine incorporates many new features, the main one, of which a production unit is demonstrated, is the Spooner high efficiency "Axiflo" fan. Another feature of this high velocity unit is its extreme simplicity. All internal ductwork has been eliminated and filters are not necessary except in exceptional circumstances. Considerable thought has been given to accessibility, and this has been achieved by re-designing the insulated panels; a sample is shown, together with a new method of sealing to prevent leakage of air from the system.

Various accessories on view include a development for converting clip machines to combined pin/clip, a great asset to firms who have clip machine and require to set fabrics such as nylon, "Terylene," etc.

The firm also show and demonstrate the new Fulton guider, manufactured by Spooner Dryer and Engineering Co. Ltd., under licence from William Fulton and Sons Ltd. It is capable of handling fabrics at high speeds, and guiding them with extreme precision on to the tenter pins. Large scale photographs of Spooner's products exhibited show the two-fold purpose behind these developments. Apart from their advantage when incorporated in new machinery they can also be used with existing stenters.

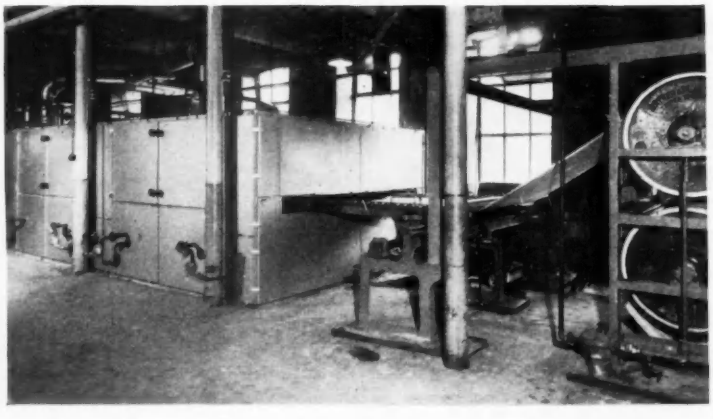
William Tatton and Co. Ltd., Leek—Stand No. 2007. All aspects of the firm's production of dyed and undyed yarns on warp beam, pirn, cone and various other types of package are exhibited, whilst the versatility and scope is clearly exemplified by a comprehensive display of fabrics ranging from lingerie to industrials. With three factories backed by their own development resources and equipped with up-to-date plant and machinery, the company has been able to play a leading part in the development and production of bulk, stretch and textured filament yarns. The display features examples of these in both yarn and fabric form, processed under licence on the well-known "Fluflon," "Taslan" and "Agilon" principles, whilst the trade will be particularly interested in the scope of fabrics manufactured from "Saaba" type yarns which represent the newest concept in modified bulk and/or stretch properties and are proving equally attractive to both the weaving and knitting sides of the industry.

* * *

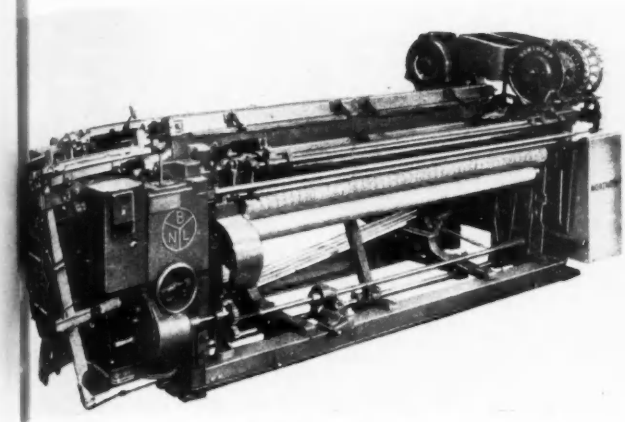
Shaw Moisture Meters, Bradford—Stand No. 1002. Main exhibits are the well-known precision and Lodge moisture meters for the immediate indication of moisture in textile fibres. The Shaw Lodge condition meter is claimed by the makers to give a control of moisture in conditioned cones and cheeses impossible to achieve in any other way. They point out that one of the difficulties involved in oven testing of small samples from conditioned cones and cheeses is that 10 grm. samples from the same cone can vary between 16% and 24%, but the Lodge meter makes it possible to test whole cones, and mills using this instrument can now check the cones down a whole frame.

The precision moisture meter immediately indicates the moisture of any weight (up to 12 ozs.) of any fibre or mixture of fibres. The accuracy is said to be unaffected by previous treatment of the fibre such as carbonising, and results are accurate on dyed material. Sliver, staple or hanks for testing are placed in the meter and the answer immediately read on the dial. A new innovation in the range of small portable type moisture meters by one of Germany's leading moisture meter manufacturers is also displayed, together with the Shaw hygrometer for indicating humidity in drying plants, etc.

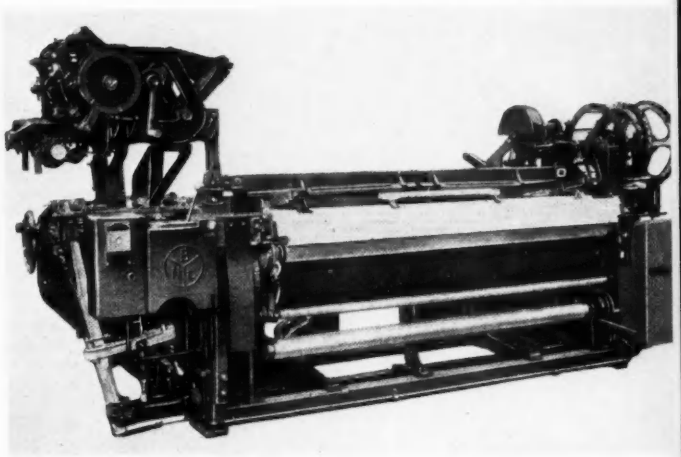
"Shirley" roller vibration detector



Air drying unit incorporating a combination of Spooner high and low velocity units



Northrop MRT model for woollen and worsted fabrics. Two shuttle continuous weft mixing; positive cam-shedding and positive worm take-up motion



Northrop MRT for rayon, etc., fabrics. Two colour rotary magazine and cam dobby

British Northrop Ltd., Blackburn—Stands No. 1101 and 1201. Four fully automatic looms from the MRT range of weaving machines are on view. All are the latest design, capable of operating at high speeds subject to suitable conditions in the weave room and quality of warp and weft. A model MRT/44 loom, weaving medium-weight cotton duck at 210-220 r.p.m., has an entirely new design of let-off motion which can be seen in operation, while the exhibit fully demonstrates the simplicity, rigidity and freedom from vibration of these machines.

On the MRT/44 weaving a spun rayon fabric attention is drawn to the ease of handling, such as the position of the sley when the loom stops for warp or weft breakage, the loom reversing mechanism, and the control of the shuttle.

A MRT/44/2 loom weaving an all-rayon, two-colour check fabric demonstrates the special features for control of weft using synthetic fibre yarns. The weft-replenishing magazine holds each bobbin positively and the ends of weft from the exhausted bobbins and the full bobbin are controlled by an entirely new operation of weft-suction.

A model MRT/70/4 loom, weaving a high-grade worsted suiting, shows the versatility of these machines in width and fabric woven. This model can also be equipped with alternative box motions for single or multiple weft designs, and positive or negative dobbies.

* * *

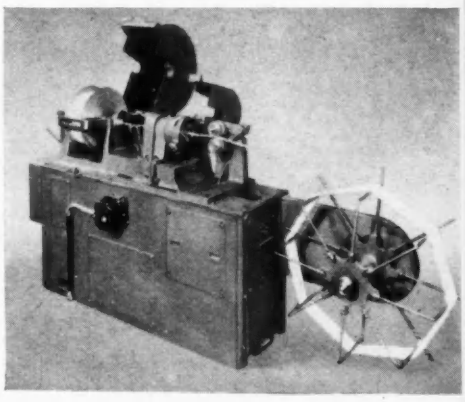
Thomas Broadbent and Sons Ltd., Huddersfield—Stand No. 1208. The 60 ins. Type 4(28) self-balancing extractor exhibited has exceptional record for reliability and high production throughout the textile industry. It is driven by a direct coupled Broadbent motor specially designed for extraction duties. Acceleration is rapid and power requirements when running at full speed are extremely low. The perforated basket is normally constructed of galvanised mild steel, but further baskets for special applications are available in vulcanised or stainless steel. This machine is available in three standard sizes of 48, 60 and 72 ins. dia. of basket. The 48 and 60 ins. models can be supplied with lift out baskets to give increased production, as spare baskets can be loaded whilst one basket load is being extracted.

The 36 ins. JB(49) self-balancing extractor has a direct coupled 950 r.p.m. motor and is fitted with a vulcanised basket for use with delicate fabrics. Uniform moisture content is automatically controlled by the time clock which can be pre-set to any desired period between 0-15 mins. The patented suspension permits out-of-balance loads to be extracted without vibration and no expensive foundations are necessary. It can be operated on good upper floors with perfect safety, and the electrical braking eliminates relining of brake shoes.

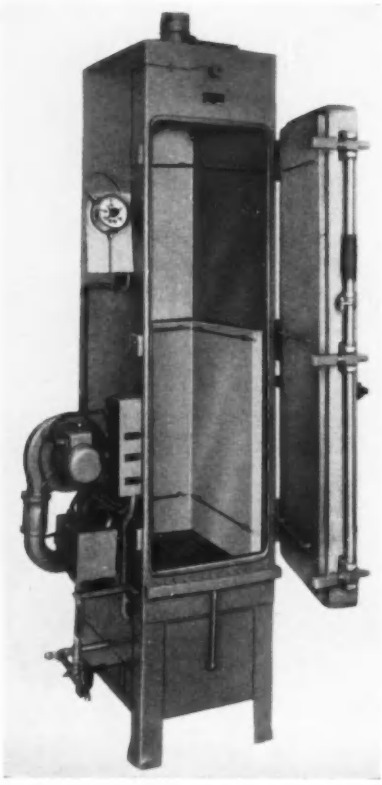
The Broadbent automatic curling machine produces an elastic spiral curl devoid of flaws without weakening the yarn, and almost any kind of loop curl or wave can be produced and accurately repeated. Uniform tension is automatically maintained by an efficient regulator. A fabricated box frame encloses the drive, and all moving parts are totally enclosed. The firm's continuous automatic opening machine has a high-output rate owing to its exceptional speed. Continuity of production enables one operator to supervise a number of machines and loading and unloading are easily performed at a convenient height. One opening machine will accommodate the production of two curling machines.

Smooth starting, improved power factor during acceleration and trouble-free running are points stressed by the makers in their centrifugal clutch couplings, in which bonded shoe linings are stated to last three times longer than the conventional riveted linings and give quieter running. This clutch will be demonstrated on stand No. 1414 by the sole selling agents for the U.K., Fleming, Birkby and Goodall Ltd., Halifax, who have been particularly successful in producing the short centre drive, incorporating the centrifugal clutch, an extremely popular drive in the textile industry.

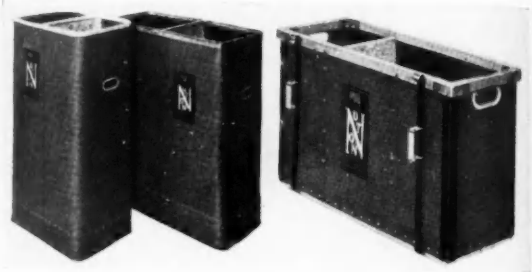
(left)
The Broadbent 36 ins. JB(49) self-balancing extractor in a modern dyehouse



(right)
Broadbent's automatic continuous process yarn curler



(left)
The Rabo 3K steam cabinet will handle 150-200 skirts per day



(right)
Gill cans and ring-frame doffing boxes (S. Noton Ltd.)

Karl Rabofsky G.m.b.H., West Berlin—Stand 1620. The popular Rabo 64 machine which is suitable for the permanent pleating of all 100% synthetic fibres and with the addition of the "Curing Table" can also process, to the requisite durability, tri-acetate materials and also resin impregnated cottons. The Rabo 65 permanent ruffie pleating machine also on view is complete with curing table, automatic temperature control and special jacquard design mechanism, which enables this machine to produce unusual effects in fabrics of synthetics or other fibres. The Rabo 12K permanent accordion pleating machine is in operation pleating in narrow bands up to 16 ins. The pleat range is from 1 to 5 mm.

An extremely interesting permanent high temperature steam pleating machine—Rabo 5, is demonstrated. This machine operates with hardly any pressure, but has a temperature range of from 50°C. to 250°C. It is entirely self contained, fully electric, hydraulically operated and has an exceedingly short steaming period. An new innovation is the Rabo 3K steam cabinet. It is able to attain by superheated steam—a temperature of approximately 105°C. The cabinet has a production of 150-200 skirts of woollen cloth per day, or 60-100 synthetic fibre skirts. The U.K. agents are Bertrand W. Smith, Highcross Street, Leicester.

* * *

N. Schlumberger and Cie, Guebwiller, France—Stand No. 1204. Their latest type high-production rectilinear worsted combing machine (PB25L) is designed to process all grades of wool. Feeding is from cans or balls, with stop motion at the feed and delivery in one revolving can. In this robust machine, the cams have been re-designed and all parts reinforced to increase the working speed to 125 strokes/min. Schlumbergers are also showing one of their CN1B type finishers for combing sets, namely a high-speed single-headed intersecting gillbox. The feed is by can or ball with delivery on a single ended ball, 17¾ ins. dia. × 15¾ ins. wide. There is a fixed balling head and the sliver guide has an alternating motion: a special device compensating for the difference of length during the to and fro motion of the sliver guide.

The company's latest type double-sided ring frame (CF226) is on view, each side being driven separately. One side is feeding from double flanged bobbins and is spinning coarse and medium counts. The other side, designed for the production of fine counts, has a heightened drafting system, with two rows of anti-ballooning rings. The back rollers are positively weighted and the feed from cone rovings. Either style of machine can be fitted with a creel of either type. Features of the spinner include simplicity of chain-driven headstock, the drawing system, with wide aprons, for two spindles and tumblers. Agents in the U.K. and in the Irish Republic are H. R. Carter and Son Ltd., 5 Fountain Lane, Donegall Place, Belfast.

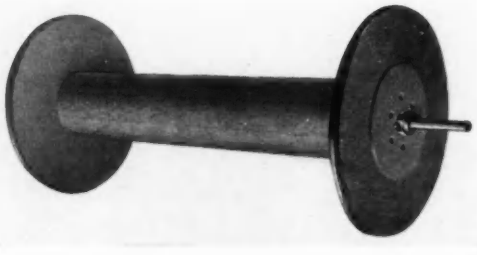
* * *

S. Noton Ltd., Oldham—Stand No. 2501. A comprehensive selection of vulcanised fibre containers of all shapes and sizes, with and without castors as used in the textile trades, can be examined on this stand. Since the 1953 exhibition demands for large sizes of containers have now become the rule, and a number of these are on show together with recently designed and approved doffing units to suit individual mills.

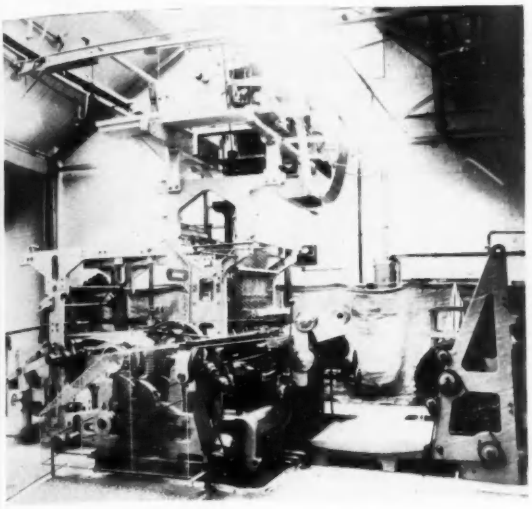
* * *

Thomas Reeder Ltd., Blackburn—Stand No. 1412. Makers of flanges and rollers for over 75 years, the company needs no introduction and this applies to their selection of flanges on view. These flanges are available with strongly beaded edges whilst the three-, four- or five-part clips are claimed to be sufficiently efficient to eliminate wedging completely. The clips are designed with the arms lying edgewise along the flange plate acting as buttresses, thus increasing the strength substantially.

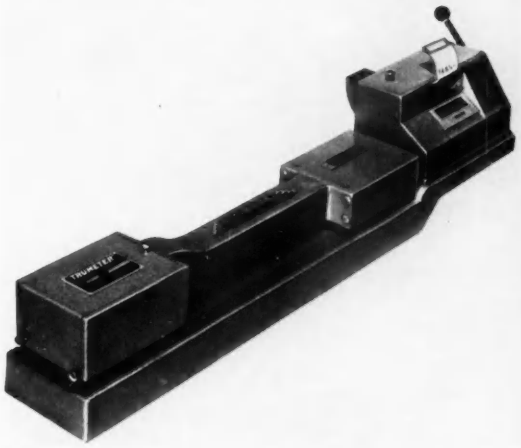
(left)
The Schlumberger PB25L worsted combing machine



(right)
A specimen from the range of Reeder beams



(left)
High-speed convertible jacquard Wilton loom (Wilson and Longbottom Ltd.)



(right)
Trumeter measuring machine incorporating a new design of ticket printer with sloping front and automatic ticket ejector

Wilson and Longbottom Ltd., Barnsley—Stand No. 1521. The "Shirley" automatic loom—a distinctive achievement resulting from the united efforts of Shirley Institute, Wilson and Longbottom and the weaving industry—is one of the highlights of this stand. Already described in detail (see *T.M.*, Sept., p. 462), the loom has many exceptionally interesting features and is again referred to on page 20 of this supplement.

Another feature of the stand is a high speed convertible jacquard Wilton wire loom. Largely by virtue of its patent epicyclic wire motion, the loom operates at very high speeds and has a remarkable productive capacity. It is readily convertible as between face to face and single wire Wilton weaving, either plain or jacquard. The loom has an extremely wide range of production and is being used not only with wool pile, but also with hair yarns and jute and sisal yarns for uncut cord carpets. A unique system of stop motions is incorporated, including a weft feeler to stop the loom before the cop runs out and this enables two or even four looms, depending on the qualities woven, to be operated by one weaver. The stop motions work in conjunction with the most modern and extremely powerful electro-magnetic disc brake mounted on the motor shaft. Built on base plates which give it the necessary rigidity for its high running speeds, the loom is operated from a system of push button controls for "forward" and "reverse" weaving and the wire hopper can be disengaged so as not to withdraw the wire when reversing. As a plain loom, the loom is equipped with a positive 3 roller pile motion which feeds absolutely the correct height of pile, taking into account the height of the wire in use and depth of pile in the carpet.

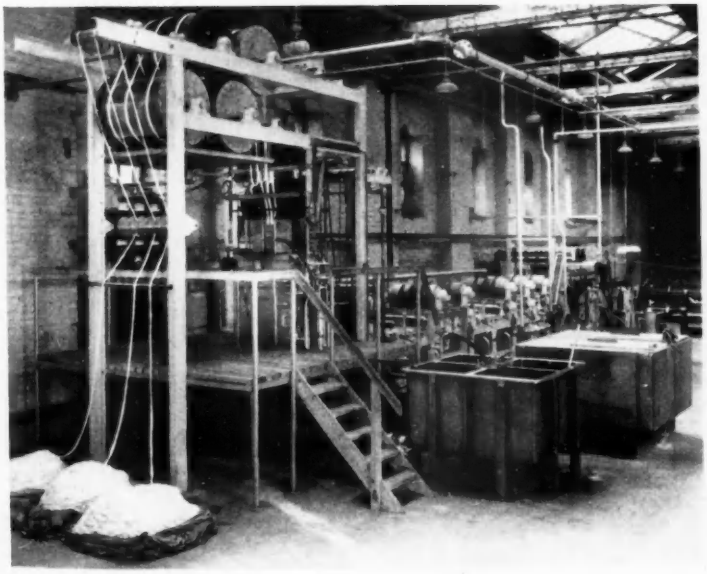
Trumeter Co. Ltd., Radcliffe and Measure Meters Co. Ltd.—Stand No. 1427. A complete range of counting and measuring machines suitable for all sections of the textile and ancillary trades is displayed and some entirely new models are on view for the first time. A new version of the "Trumeter" measuring machine for measuring cotton, silk, nylon, etc., based on 30 years' experience in the measuring of textiles, incorporates a new design of ticket printer with sloping front for easy reading, with automatic ticket ejector, also a fault-category indicator which will record on a continuous paper strip, together with the yardage, an exact indication of the faults in a piece.

A new low-priced inspection table measurer for a quick-check on piece measurement during inspection, fitted to the side of the inspecting table, can be tilted away when not in use. It is available at a low price so that several inspecting tables can be equipped with the new units.

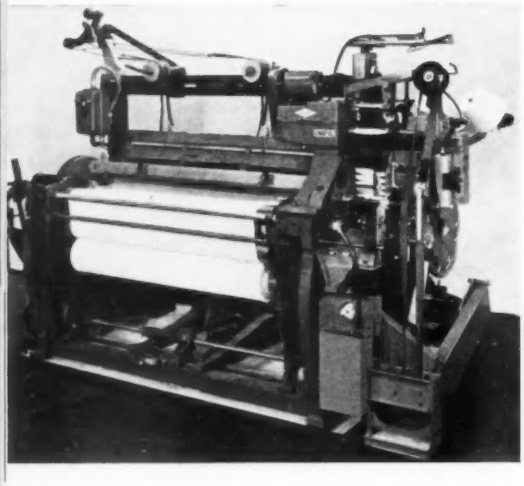
A new pre-determined counter with external pre-setting is on view also a remote-control illuminated counter with 1 in. high digits. A pre-determined yarn measurer has automatic scissor cut-off at a pre-set yardage to ensure contant bobbin lengths is of especial importance in reducing wastage in winding and doubling.

* * *

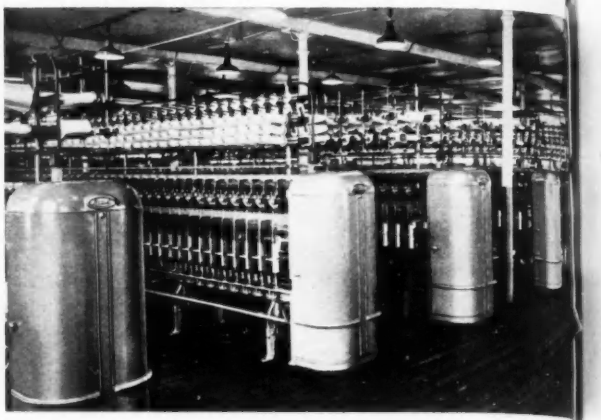
Standfast Dyers and Printers Ltd., Lancaster—Stand No. 1008. A feature of this display is a single strand patent molten metal dye machine. This has been designed to be efficient in output, space saving and simple in installation. Consisting of the preheat cylinder, molten metal dye unit, after treatment range, and finishing cylinder, this compact machine is well able to maintain an average output of 2,500 yds./hour allowing for a number of shade changes per shift. It is arranged to dye tapes up to 1½ ins. wide and is instrumented to run automatically, requiring a minimum of attention during normal production runs. This unit only occupies a floor space of 12 ft. by 6 ft. and only needs connecting to the steam, water and electricity supply to be ready for use. Visitors can also see on the stand the laboratory molten metal machine. This is employed for the determination of dye-fabrics prior to bulk dyeing.



The patent continuous molten metal yarn dyeing machine installed in the factory of Standfast Dyers and Printers Ltd.



(left)
"Unifil" loom winder (Universal Winding Company)



(right)
The "Leesona" Model 10 high speed ring doubling machine (Universal Winding Company)

Universal Winding Company, Manchester 1—Stand No. 1105-1205, show the well-known "Leesona" Model No. 44 "Roto-Coner"—a high speed winding machine for winding hosiery and warping cones and cheeses for package dyeing. The heart of the machine is the original rotary traverse which simultaneously rotates the winding package and guides the yarn into precise position on the package. Alternative arrangements of grooves are available, e.g., two and three "crossings" regularly spaced for winding cheeses; shorter cheeses than the conventional 6 ins. length traverse may also be wound. Warping cones of 5° 57′ taper are wound with a 5/8 accelerated 3-crossing rotary traverse, and hosiery cones of 9° 15′ taper with fully accelerated 2½-crossings rotary traverse. In addition, for hosiery cones a specially designed builder cam augments the effect of the acceleration of the traverse to increase the cone taper as winding proceeds. Standard rotary traverses are made from special bakelite, but special metal traverses are available for winding worsted, woollen and spun yarns of man-made fibres. Overend yarn supply arrangements are adaptable to a wide range of ring bobbins, mule cops and cheeses. "Micro-set" clearers can be set by dial to a given width of setting indicated in thousandths of an inch.

The British-made "Leesona" Model No. 10 high-speed ring doubler is an all-purpose machine for producing high-quality doubled yarns. It is specially suitable for doubling combination and blended yarns of new and old textile fibres. Versatility makes it equally suitable for handling yarns as diverse in character as fine denier nylon yarns in one case and coarse woollen yarns in the other. Principal features include: Regularity of speed over all spindles resulting from the constant-tension flat belt drive and even-pressure contact of the belt with the spindle whorls. Individual adjustable disc tensions for single ends ensure constant equal tension of all ends or, alternatively, constant tension of dis-similarly tensioned ends when making doubled yarns of such constructions. This ensures a regularly even yarn feed to each spindle, and at the same rates to all spindles. The exclusive feed roller design is arranged to maintain yarn "roundness" since there are no "nips" to crush and flatten the yarn.

Two "Unifil" loom winders operating in conjunction with Northrop looms demonstrate the cost-reducing potentialities of this system of weft handling in the production of grey woven cloth. Standard cotton cloths in normal production by well-known Lancashire mills are being woven on the stand, as follows: (I) Northrop Model "S" 48 ins. reed space. Cotton cloth, 38½ ins. wide, plain weave. 13s cotton warp sized 1,780 ends 42T reed. 13s cotton weft, 46 p.p.i. (176 picks per min.).

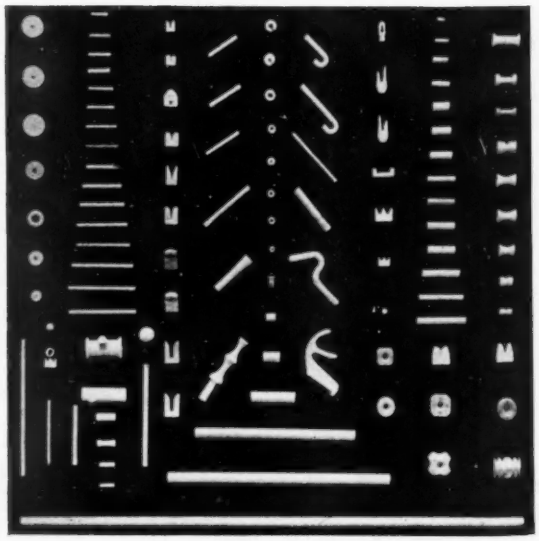
(II) Northrop Model "F" 30 ins. reed space. Cotton sheeting 83 ins. wide. 17s cotton warp 60 ends per inch. 18s cotton weft. 60 p.p.i. (112 picks per min.).

In each instance the weft has been wound on 9° 15′ hosiery paper cones by a standard "Leesona" Model No. 44 "Roto-Coner" at a winding speed of approximately 550 yds./min. A "tailing-bunch" is wound on each cone tube before winding, and "Micro-set" slubcatchers are used for yarn clearing and set at 0·020 in. for 13s weft and 0·0/5 in. for 18s weft respectively.

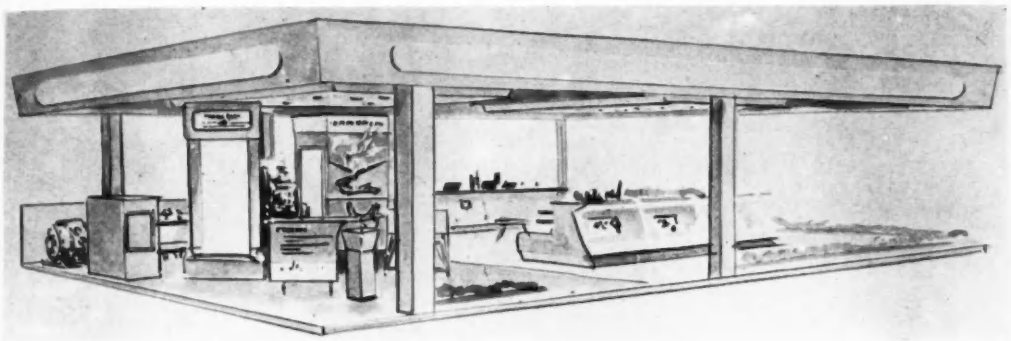
The stand also has a display of Saaba stretch yarns and garments made from them.

Northern Mill Supply Co., East Didsbury, Manchester—Stand No. 1004. Representing Steatite and Porcelain Products Ltd., the display on here comprises a large and varied range of "Faradex" thread guides, the hard ceramic which has been the answer to many problems connected with the successful processing of man-made fibres. This ceramic is obtainable in a diversity of designs, in conducting and/or non-conducting form in controlled surface finishes.

In addition, the firm's principals are producing, for certain special applications where a really hard ceramic is necessary, a high alumina ceramic having a very high mechanical strength. With a bending strength of 40,000 per sq. in., excellent resistance to abrasion and corrosion by acid, this ceramic is already in extensive use. Another section of the stand is taken up with an astonishing range of porcelain thread guides manufactured by Porzellanfabrik Paul Rauschert, G.m.b.H., Steinbach-am-Wald/Obfr, Germany There are the special hard "satin" glazed porcelains, white and coloured glazed hard porcelains, multiple curl types; in fact, every section of the textile industry will find this exhibit of particular interest.



(right)
Some of the infinite variety of thread guides to be examined on the stand of Northern Mill Supply Co.



Artist's impression of B.R.R.A. Stand. The main exhibit in the background is the steam heated pilot plant of the single pass type for treating 12 ins. wide fabric. On the left are the fluid bed displays and the instrument display is on the right

British Rayon Research Association, Heald Green, Manchester 22—Stand No. 1607. Approximately half the stand area is devoted to the B.R.R.A. fluid bed development work and the remaining half to a display of Association instruments available commercially. Fluid bed exhibits have been arranged in collaboration with the six machinery firms comprising the Fluid Bed Manufacturer's Association. These firms have received licences from the Association to develop, manufacture and market fluid bed equipment. A continuously working demonstration, to show heat transfer properties of air in relation to a fluid bed of particles, is a novel feature which will be appreciated by many.

The instrument displays have been designed in collaboration with Louis Newmark Ltd., a London firm manufacturing instruments under licence from the Association. Provisionally, lighted photographic display panels in colour, depicting instruments in use, will highlight the instruments separately displayed. These include:—

(1) Strainometer: used in conjunction with Newmark electronic unit I, and a suitable recorder, to measure continuously the modulus of a continuous filament yarn.

(2) Yarn tension transducer: shown in conjunction with the Newmark electronic unit I, to measure transient and peak tensions on running yarns.

(3) Yarn filament counter: counts the number of individual filaments in continuous filament yarn.

(4) Warp tension balance: an instrument which allows the tensions in the two sheds of warp to be equalised with the loom running.

(5) The "Vibrascope" plus its associated frequency meter. This instrument measures the total denier of a fibre or yarn.

(6) Lustremeter Mark III: this instrument is used to indicate changes in the lustre of continuous filament fabric. Marketed by Sargrove Electronics Ltd., Alexandra Road, Hounslow, Middlesex.

(7) Yarn speed indicator—"Speedotex". Manufactured by Dukes and Briggs Ltd., Manchester.

(8) Loom setting indicator: Farnworth Engineering Co. Ltd., Farnworth.

(9) Lease rod tensiometer. To be produced commercially by Jones Textilaties Ltd.

(10) Loom take-up cloth guide. To be produced commercially by George Hattersley and Son Ltd., and Butterworth and Dickinson Ltd.

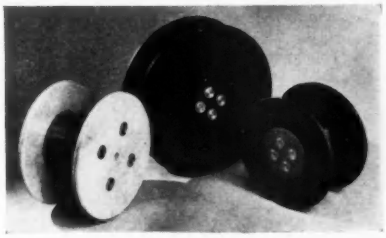
* * *

T. Bibby and Co. Ltd., Halifax—Stand No. 1308. A stainless steel pump-operated top can dyeing machine on view is fitted with a new three-way valve and a variable speed drive which enables the flow to be adjusted to suit different fibres. Designed for dyeing pieces of mixed fibre content, the stainless steel winch piece dyeing machine displayed is complete with totally enclosed hooding and fitted with variable speed unit to give infinitely variable winch speeds.

"Even Dyer." A machine for dyeing nylon piece-goods in rope form (T. Bibby and Co.)

Dyers will be interested in a stainless steel sample hank dyeing machine to dye sample lots of up to 2 lbs. weight with a liquor ratio compatible with a full scale dyeing. A stainless steel pump-operated spindle type dyeing machine specially designed for dyeing man-made fibres, which do not lend themselves easily to the complete penetration of dye liquor is shown, also stainless steel buckets and other items of stainless steel dyehouse equipment.

Stabel Products Ltd., Coventry—Stand No. 1017. A range of plastic flanged bobbins suitable for selvedges and spare ends, also as main warps on smallware looms, for all types of yarn and makes of machinery is displayed, along with pirn tubes and cones, measuring rollers for beaming machines and rollers and beams fabricated from laminated plastic materials A full range of creel adaptors, and package holders, tubes, rollers and plywood flanged bobbins, etc., for all branches of the



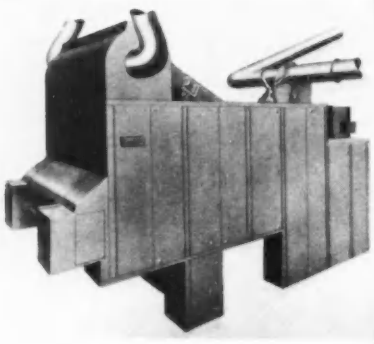
Wood plastic and light alloy bobbins for use on yarns which exert high pressures against the flanges

(Stabel Products Ltd.)

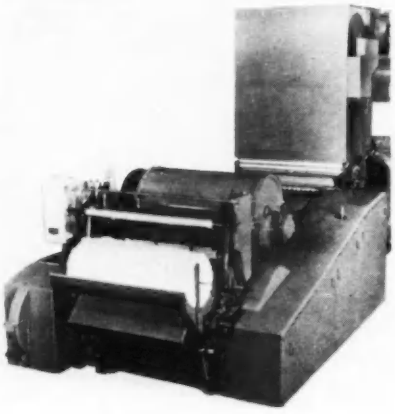
industry can be examined. Oil-less bearings on view manufactured in hard rock maple, and vacuum and pressure impregnated with grease have many applications in textile and general engineering trades. Various loom parts, including picking sticks, also pallets and bobbin trays complete a stand of considerable interest to both spinners and manufacturers.

* * *

Sample Weaving Machine Co., Switzerland—Stand No. 1902. The latest model of the complete mechanical sample weaving loom is suitable for all materials. Electro-magnetic control of the shafts with accurate take-up motion and two warp beams results in a beautifully compact model working in the same manner as the previous well-known hand-operated job. The working width is about 20 ins., and the operating speed 82 r.p.m. A small warping machine, specially designed for use in connection with sample loom, has a creel to hold 35 cross wound cheeses or flanged bobbins, or 40 cones or pirns. (U.K. agents are G. W. Thornton and Sons Ltd., Cheadle).



"Tweedales-Shirley" hopper opener



The "Clean-o-Matic" scutcher with automatic lap doffer, also reserve feeder

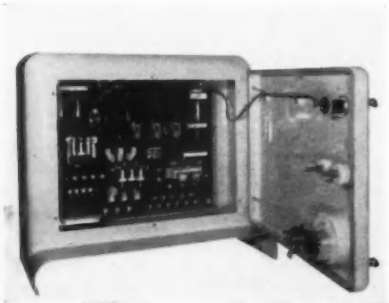
Two-can coiler (Tweedales and Smalley)

Tweedales and Smalley Ltd., Castleton—Stand 1512. The exhibits include the new "Clean-o-Matic" blowroom, only recently released to the trade, a narrow doubling machine for producing large packages, an automatic two-can coiler, and a ringframe which will spin yarns direct from sliver. The new blowroom range has been designed to produce laps with maximum cleanliness and regularity and is the product of several years of concentrated research. For cottons up to and including 1¼ ins. long the blowroom is based on the intensive opening and cleaning power of the "Shirley" opener which in the short period of four years has become renowned throughout the world for these very qualities.

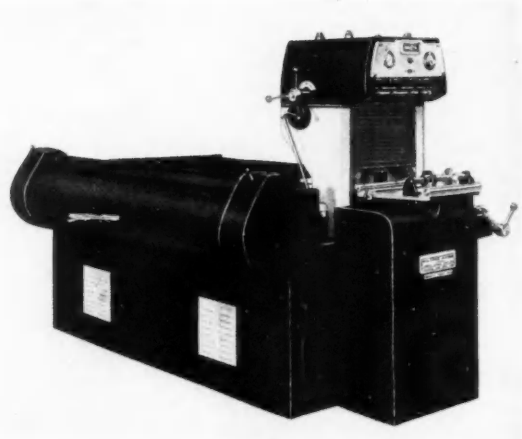
The principle of pre-opening and pre-cleaning is the basis for the "Tweedales-Shirley" hopper opener which consists of a normal type hopper section and two spiked beaters operating over fixed grid bars in a controlled air stream. The function of the beaters is through a gentle buffeting action, without the use of a nip point, to open up the cotton into small tufts which can then be drawn through trunking on to a revolving perforated cage by means of a fan located on top of the machine. A high reserve box allows a regular constant feed to the "Shirley" opener. The reserve feeder has been developed to take the cotton direct from the "Shirley" opener cages and to deposit it on the scutcher feed lattice in an even, constant sheet which enables a low coefficient of variation to be obtained in the lap. The scutcher itself is fitted with an automatic lap doffing arrangement and "Shirley" lap felters which prevent "lap licking" at the card.

The new doubler is based on the successful "P" type ringframe with its narrow width of 28½ ins. Packages weighing some 12-13 ozs. can be obtained on paper tubes with a 12 ins. lift and 3 ins. ring dia. using a spindle speed of 8,500 r.p.m. The machine is a light doubler and is designed for yarns with a resultant of 4s English counts. The makers claim that the two-can coiler is a welcome improvement to the cardroom because it has the advantage of saving waste and reducing wage costs by allowing an operative to supervise more cards. Its measurement of the sliver is also an aid to block creeling. When a predetermined amount of sliver is in the can a timing mechanism operates a crank which moves the coiling head to the next can. The unit is arranged for 12 ins. cans but will soon be available for 14 ins. and 16 ins. cans. Of great importance in the direct spinning of yarns from drawframe sliver is the prototype machine exhibited. A double-sided machine, it is based entirely on the narrow "P" type ringframe with a 4 ins. gauge, 12 ins. lift and 3 ins. ring. The super high drafting is carried out by two double apron drafting zones separated by a condensing zone.

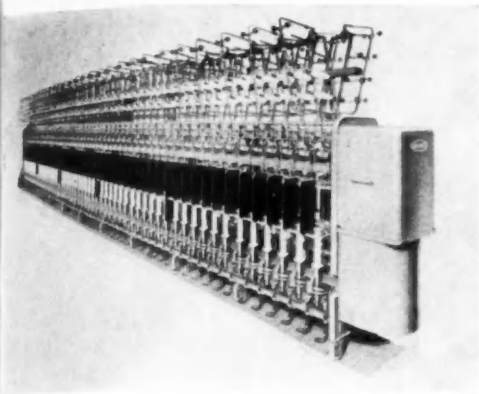
Milford Astor Ltd., Salford—Stand No. 2707. The main feature here is the current model of their selvedge marking machine which enables trade marks or designs, in one or more colours, to be marked on the selvedges of cloths. Several colours can be used at once and as the time required to change colours (no inks or pastes being used) is only 60 secs., it is quite feasible to choose a suitable shade for each piece of cloth. All kinds of textiles can be marked, ranging from the coarsest woollens to the finest nylon. Feeding of the cloth is automatic, whilst the material is guided by special guides. Excessive tension and the use of pins is avoided. The company also show machines for producing the up-to-date forms of pattern presentation using plastics, card, leathercloth, etc., together with all forms of display material and sales aids for the point of sale. Their new "box end" marking machine is also on view. This machine enables manufacturers to print the interchangeable information on to the ends of rigid boxes. The information can be changed literally in a matter of seconds.



(left)
Control gear for the drive on the T and S ringframe



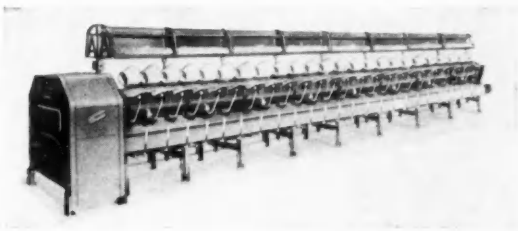
(right)
Milford-Astor selvedge marking and presentation machine



(left)
The "Arunco" large package ring twister

(right)
"Arunconer" high speed cone winder

(Arundel, Coulthard and Co. Ltd.)



Arundel, Coulthard and Co. Ltd., Stockport and Preston—Stand No. 1520. The "Arunco" quick traverse winder displayed produces large firm packages of single or multiple end cheeses for doubling frames. It is made in different gauges to suit any traverse from 5 to 10 ins. Easy change V-rope pulleys readily permit cam-to-drum ratios being selected to suit the particular class of yarn being wound. The "Arunco" upright spindle winder has been designed to rewind yarn on to double flanged bobbins for the uptwister spindles on the "Aruncorder." It is a robust machine with tape driven heavy duty spindles fitted with footbrakes.

The "Arunco" two-for-one twister is a new frame for making folded yarns into twisted yarns at high speed from cheeses on to cheeses, using the two-for-one-twist type of spindle. A rigidly built frame with tape driven spindles, positive feed of yarn from cheese to cheese, and stop motion to spindle and cheese on end failure. Specially designed for winding cones of 6 or 8 ins. traverse, the "Arunconer" high speed cone winder has independent drive to each side by separate motors and V-belts, whilst a simple arrangement for varying the speeds of the drums and cams enables the drum to cam ratio to be changed to suit different classes of yarn.

The "Aruncorder" tyre cord machine on view has been designed to produce tyre cord of cabled yarn at one operation by using the uptwist and downtwist method; the downtwist being by ring and traveller. The "Arunco" heavy type doubling frame is a new design of low build to give ease of production of heavy type packages. It has been built of heavy construction in order to provide stability when large packages are being produced at maximum speeds. The frame can be arranged for wet or dry doubling with straight or taper build and can be fitted with creels to accommodate beams, cheeses or cones.

The Preston works are exhibiting two "Arunco" large package ring twisters, one having a 6 ins. gauge with 4 ins. ring, will demonstrate high speed production for fine and medium worsted yarns, giving up to 1 lb. of yarn on a 9 ins. bobbin. The other, on an 8 ins. gauge basis, with 5¾ ins. ring, shows the efficient handling of heavy wool and carpet yarns on a 9 × 5 ins. bobbin.

* * *

Shaw and Marvin Ltd., Beeston, Notts.—Stand No. 1423. Noted for their mercerised and dyed yarns they show a varied selection of its productions. Although the firm specialises in vat dyed, fast to light, bleach shades and direct dyed cotton yarns of enhanced lustre and solidity, it is also meeting the requirements of the modern age in processing "Orlon," "Acrilan," "Terylene," nylon and blends of these fibres. It also caters for the manufacturers of half-hose, stockings, knitwear and braids, etc.

* * *

Stanvix Manufacturing Co. Ltd., Middleton, Manchester—Stand No. 2318. Laminated fibre-glass products on view include a dyehouse carriage, barrow, buckets and corrugated sheets. All have a high chemical resistance, are practically unbreakable, and extremely light. The company's patent swivel joint for air ducts, a working model of which is on show, incorporates a double ball race to take alternating compression and tension loads, and can be applied where an airtight low friction swivel joint is required to carry an out of balance load, such as offset nozzles for stenters, capable of automatic gang adjustment for varying cloth widths. Firms will find "Bucky" collapsible containers extremely interesting. These thief-proof containers protect products in transit, cut storage space and packing costs, no strapping, binding or wrapping needed. When returned collapsed, they take up one-twelfth the space required when erected, thus attracting lower freight charges. P.V.C. covered steel has many applications where chemical resisting tanks and containers are required. With special welding equipment the firm fabricate these in all shapes and sizes. An example of this work is shown on the stand.

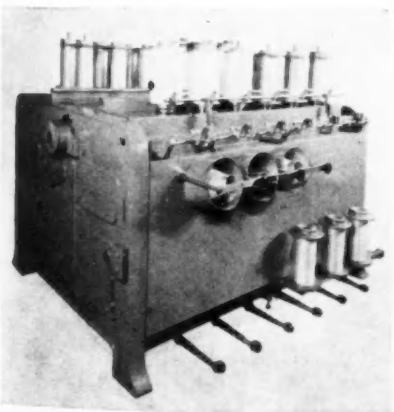
* * *

Silentbloc Ltd., Crawley, Sussex and Andre Rubber Co. Ltd.—Stand No. 2503. Several extremely interesting exhibits can be seen in this display, including condenser rubbers, loom mountings, French draft aprons, stripper belting, sectional squeeze rollers, spindle bands, and back washing roller.

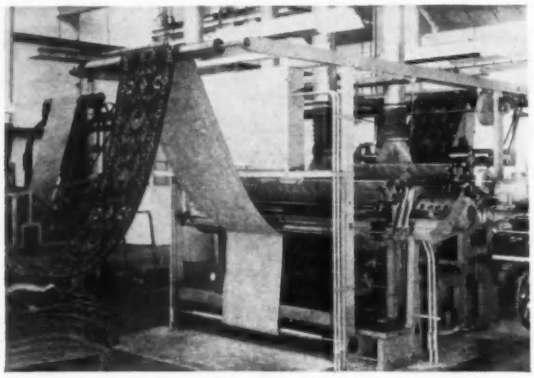
* * *

Dr. -Ing Heinz Mahlo, Saal/Donau—Stand 1106. Among the instruments on this stand the bleach meter (BMK) measures the reflection of light from the fabric, the quantity of light passing through, and converts these to a percentage bleach. It is possible to measure the degree of whiteness and the degree of bleaching on both the dry and the wet fabric. A portable instrument to measure expansion and contraction of running warps or fabrics is electrically operated utilising the analogous calculation method. The expansion or contraction is continuously shown on the instrument; tests may be undertaken at any point in a running warp or in fabric, in process. The "Orthomat" (FMC) is an electronic device recording the direction of the weft threads in a running length of fabric. It provides automatic guidance to selvedge straightening devices. Three detectors over the fabric run on the left, centre and right of the cloth. A ray of light projects through the fabric towards these detectors. When the weft deviates by more than a pre-arranged tolerance, a winking light draws attention to this distortion, or an automatic regulation device to the pilot motor of the weft straightening apparatus will automatically adjust this by stages in the light of the deviation.

Other instruments on view include the "Textometer" for measuring and controlling moisture on stenters and driers, etc. The "Antistat"—unit for static elimination is suitable for installation on any machine at the point of build-up of static electricity. Geoffrey E. Macpherson (Textile Engineers) Ltd., Nottingham, are the U.K. agents.



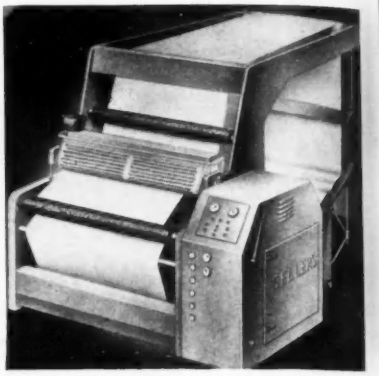
"Arunco" upright spindle winding machine



(left)
Newly designed 60 ins. wide double cylinder Mark 50 carpet shearing machine

(Sellers and Co. Ltd., Huddersfield)

(right)
The new Continental high speed shear



Sellers and Co. Ltd., Huddersfield—Stand Nos. 1706 and 1806. The four cylinder "Ray type" shearing machine is the company's latest development in high speed shearing machines expressly designed for high efficiency shearing of fine cotton, linen, rayon and synthetic fabrics. The four cylinders are mounted vertically and cut twice on the face of the fabric and twice on the back at 80 yds./mts./min. By means of a Sellers' sewing and rolling unit a very high efficiency rate can be attained, in some cases as much as 40,000 yds. of woven fabric have been handled in one 8-hour shift.

The 72 ins. wide rigging and rolling machine of the vertical direct feed type, also shown, incorporates the latest type automatic guiding apparatus, eliminating the necessity for manually guiding the selvedges together, which is equally sensitive on light and heavy fabrics. A collapsible sword is fitted facilitating the withdrawal from lightweight fabrics which easily become deranged.

The newly designed 60 ins. wide double cylinder Mark 50 carpet shearing machine on view is fitted with a four-speed gear box giving a maximum speed of 25 yds./mts./min. This unit has individual drives to the cylinders, brush setting up rollers and a carpet edge trimming device. Other features include cylinder oscillating motion, automatic cylinder locking guards and cut adjusters.

The fourth machine on the stand, the Continental shearing machine, incorporates the Mark 50 high speed shearing headstock enabling first class shearing of woollen and worsted fabrics at speeds up to 54 yds./mts./min. Continuous production or multi-pass runs are possible, an easily removable scray being provided if the latter is required.

* * *

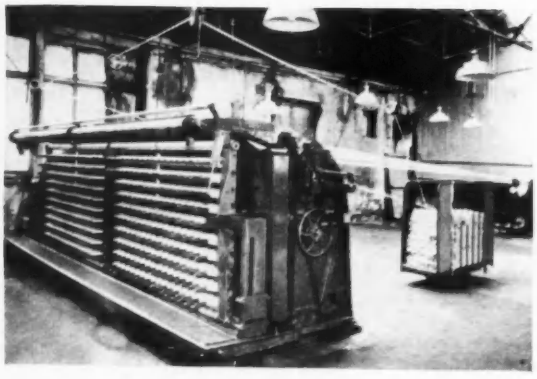
Thomas Holt Ltd., Rochdale—Stand No. 1518. The Model M.86 high speed cone or cheese winder displayed is arranged on one side to wind from hank to No. 8 taper hosiery cones and on the other to wind from muffs to No. 8 taper hosiery cones. Each side is equipped with hank disentanglement motion to eliminate breakage of yarn. The Model M.106 high speed cone or cheese winder on the stand has a variable speed drive and variable traverse speed enabling wide range of yarns to be wound. It is equipped with diameter stop motion to each individual spindle with package diameter up to 10 ins. One side of the machine is arranged to wind on to No. 8 taper cones from cotton and worsted supply packages; the other side is winding on to 6 ins. traverse spring type dyeing package holders for cheeses.

A section of the stand demonstrates the electro-magnetic spindle applicable to warp winding and as fitted to the Model N warp winder, and also applicable to the winding-up of yarn from a fed source such as draw rollers, dyeing machine, etc. The Model P.U. individual heavy duty cone or cheese winder shown is capable of winding precise wound packages of up to 12 ins. traverse and 14 ins. dia. and 36 lbs. weight, and incorporates automatic diameter knock-off.

The No. 7 high speed beamer can be built to any width and is designed to accommodate both old type small diameter beams and large beams with flanges up to 40 ins. Hydraulic pressure control can be pre-set to suit counts and quality of yarn. Machine has variable speed motor drive, length indicator knock-off, large dial speed and pressure indicators and powerful brake to stop driving drum in one revolution, this being electrically operated from broken thread detectors in creel. Beam doffing hydraulically operated, the beam being lowered on to the floor or truck in a few seconds. Model Q.2 high speed spindle driven precise winder for continuous filament yarns of all deniers on to cheese or 3° 30′ silk cones. Straight yarn line; constant yarn speed or speed increasing with package diameter to any required extent or constant spindle speed. Automatic pre-set control of roll pressure. Diameter stop motion up to 7 ins. dia. packages.

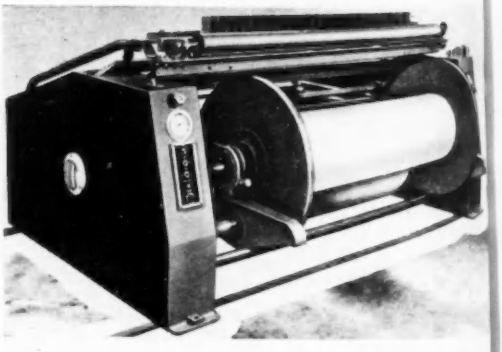
* * *

Klimatechnik, Stuttgart, West Germany—Stand No. 2001. On this stand photographs draw attention to some of the large fully automatic air control plants which have been installed in different sections of the textile industry in various countries. Detailed information is also available of the wide variety of equipment manufactured for drying, purification and humidification of air. The U.K. agents are Coates Smith Ltd., 33b Curzon Street, Derby.



(left)
Holt's Model N warp winder

(right)
Holt's No. 7 high speed beamer can be built to any width



(left) "Spenstead" steel panel constructed blending bins

(right) "Spenstead" dust removal cyclone

Spencer and Halstead Ltd., Ossett—Stand No. 1513. This stand is showing specialised equipment dealing mainly with wool conveying, blending and oiling systems which are supplied to overcome the old hand method of blending to make this into a continuous or semi-continuous mechanised operation, at the same time increasing output, reducing costs and giving better quality blends with perfect oil control. Part of the equipment on view is in operation and on show is one of the latest vortex wool oiling devices. Other items exhibited are the new steel blending and storage bins together with rotary blending equipment and the latest methods of processed dust control will be included. A sheeting-up machine is also shown actually at work. Textile manufacturers who already have installed conveying or blending systems will find many of the new improvements on show of interest as the majority of the equipment could be incorporated without difficulty into existing plants of this nature.

* * *

Tellus Super Vacuum Cleaner Ltd.—Stand No. 2709. General factory cleaning machinery and materials in process all come within the range of Tellus suction cleaners and the variety of tools makes it highly efficient for any cleaning job. On view are light extension tubes reaching to a height of more than 20 ft. and a special "knapsack" model is available for cleaning at greater heights, and the equipment is readily adaptable for use as a very effective extractor unit and all models can be used as blowers. Improved fuel efficiency at lower cost can be obtained by use of the equipment for cleaning many types of boilers, a task for which they have proved very successful. Models can be supplied with a wide floor nozzle fixed to a container for rapid cleaning of large floor areas with great saving of time and effort; also available is the floor polisher, which with three-brush floating action is a medium weight machine, easy for female staff to use yet heavy enough for high efficiency.

* * *

T. Lund and Sons Ltd., Bingley—Stand No. 1418. The exhibited products of this well-known firm of textile accessory manufacturers indicate the high standard of quality attained in production. The exhibits include the "Peacock" range of mail, noose and blanket healds, all metal reeds; fine pitch bound silk reeds, cotton pitch reeds and woollen and worsted pitch reeds together with the "Abbeydale" warp-stop motion, the "Weaverite" and "Kerbro" alloy frames and an efficient reed brushing machine. C. C. Egelhaaf, Reutlingen, W. Germany, and Steel Heddle Manufacturing Co., Greenville, S.C., U.S.A., are represented by the company. Their exhibits include "Drawtex" and "Glidetex" frames and heddles, Egelhaaf heald warp stop motion, fibre clad shuttles for Crompton and Knowles, and Draper looms, and the new "Duramold" plastic shuttles.

* * *

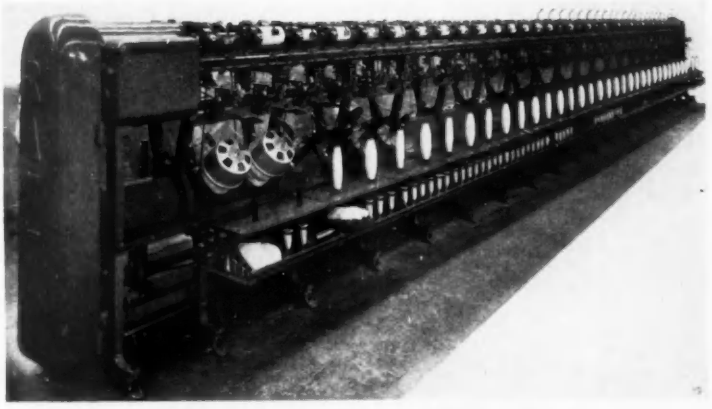
Michele Ratti, Luino, Italy—Stand No. 1026. A high speed re-winding machine for uptwister bobbins has been designed to take the yarn at high speed and with the lowest possible yarn tension on to uptwister bobbins holding one or even 2 lbs. of yarn. The machine is extremely sturdy and efficiently built and it winds a perfect package with accurately spaced ends.

A new feature of the machine is an automatic compensator tension which levels out tension variations to a very great extent as they come from the over size draw tubes. It is interesting to note that Ratti are not only builders of winding and uptwisting machinery but run their own throwing plant and thus the machines are based on a vast and first-hand practical experience. Export agents for Ratti are Ouboter Bros. Ltd., Kusnacht, Zurich, Switzerland, represented in the U.K. by Barke Machinery, 100 Portland Street, Ashton-under-Lyne.

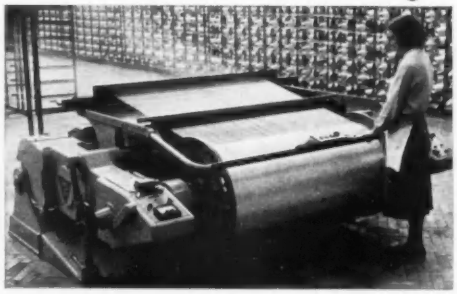
Weldon and Wilkinson Ltd., Nottingham—Stand No. 2316. A comprehensive range of yarns, garments, hosiery and fabrics illustrate the company's services as dyers to the textile trade. In addition, a range of yarns represent their productions as merchants and shippers of processed yarns in hank, cone, cheese or a number of specialised packages for individual trades. Most fibres are exhibited either in yarn or made-up form, including cotton, wool, rayon, synthetic yarns (including crepes) and mixtures. The dyed yarns are in all degrees of fastness including direct fast to light, fast to washing, fast to bleaching.

* * *

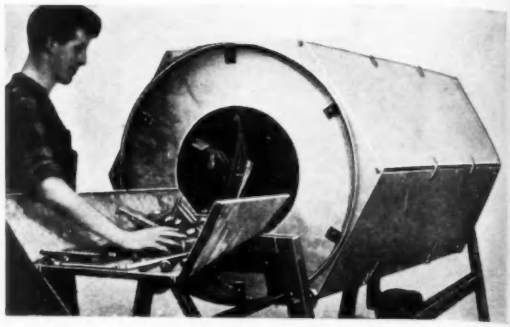
Torrington Co. Ltd., Coventry—Stand No. 1023. This display is concentrated on the products of the bearings division. A wide range of needle and roller bearings designed to provide long life at high speeds with considerable saving in space and cost can be seen with many recent developments and to illustrate typical applications of the company's products in textile machinery and accessories, several sectioned exhibits of top drafting rollers, bottom roller joints, spindles, gearing and conveyor rollers are displayed. These demonstrate the space saving advantage and the simplicity of assembly of these bearings. A range of needle thrust bearings designed to take the space normally occupied by a plain thrust washer will interest visitors.



The Ratti high speed re-winding machine (Type CW)

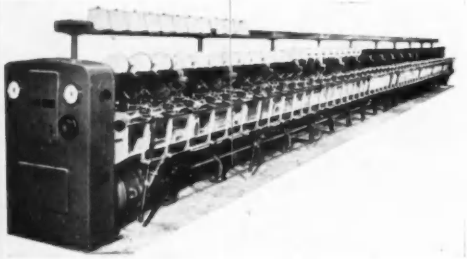


(left)
The Crowther series "D" warping machine

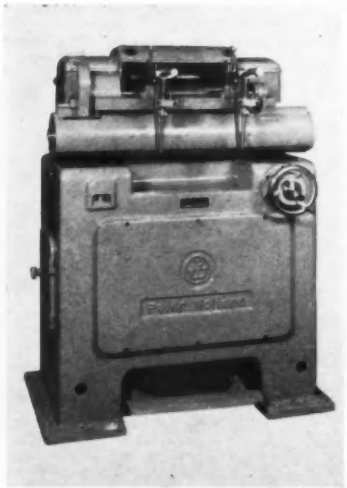


(right)
The Damman pirn stripper (Crowther Ltd.)

Crowther Ltd., Thurmaston, Leicester—Stand 2103. The high speed direct warper Type "D" on view is for 54 ins. section beams up to 36 ins. flange dia., or for 84 ins. tricot beams. Features include electronically controlled constant speed up to 800 yds./min.; hydraulic system for pressure roll and beam doffing; spindle driven for hard slasher beams or soft even density dye beams; suitable for cotton or delicate synthetics. The high speed section warper Type "C" (Mk. III) is for beams up to 28 ins. width × 21 ins. flange dia. for warp knitting or for several smallware ribbon or tape beams. Suitable for sheet warp or rope warps, for cotton or delicate synthetic filament yarns. Electronically controlled clutchless start with constant yarn speed 0-600 yds./min. Other features on view include the high speed electric stop motion creels, including truck type for synthetic filament yarns with special light type totally enclosed stop motion bars, and special tensions with ceramic guides throughout for fine denier yarns. The high speed Crowther/Mettler cone winder has grooved traverse for all spun yarns on to cheeses or cones 3°30′ to 9°15′ taper of wood or hardpaper. Equipped for dye cones, conditioning, waxing etc., winding speeds up to 1,000 yds./min. The Damman pirn stripper and the Peter Wolters roller buffing machine are also on view.



The Crowther cone, cheese or dye package winder with grooved drum traverse



The Wolters buffing lathe on the Crowther stand

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Swindells Engineering Co.—Stand Nos. 1701, 1801. Special features of a new high-speed warping machine for the narrow fabric industry include constant yarn speed throughout warp, also an electric stop motion incorporating predetermined measuring counter, with remote controls on creel. Indicator lights signify single end breaks. A new traverse mechanism is one of several features in the new high-speed machine on view for reeling and muff winding. It also has an electric stop with pre-determined measuring counter. Traverse length and wind ratio are adjustable. With the muff expanding machine shown, expansion and contraction are automatically controlled. High-speed production up to 180 muffs per hour.

* * *

Muschamp Textile Machinery Ltd., Bardsley, Oldham—Stand No. 1115. The single-spindle U.S. Acme "Texturizer" machine on view for the first time here is manufactured by U.S. Textile Machine Co., Scranton 8, Penna., U.S.A., and can be used for the production of "Taslan" textured filament yarns. "Taslan" is a registered Du Pont trademark used to designate textured filament yarns made in accordance with quality standards set by E.I. du Pont de Nemours and Co. Inc. In addition to the single-spindle unit, the "Texturizer" is available in 60- and 50-spindle constructions for both the wet or dry process of texturing twisted or untwisted filament yarns from cheeses, cones, pirns or spools.

Robert Reiner Inc., U.S.A.—Stand No. 115. The model BR1 pirn degreasing and polishing machine on show is designed for use with existing pirn-stripping machinery or can be used separately with an automatic feed. Pirns are fed straight into the machine, automatically processed and ejected by a small conveyor. No operative is needed. The machine functions in four stages. Pirn surfaces are cleaned and degreased in the first and second stations followed by a smoothing and buffing operation at the third and fourth stations. In this way, pirns with perfect surfaces and clean grooves, free from contamination, are produced. The BR1 machine has been factory-tested to produce up to 23 pirns per minute and reports from firms in the U.S.A. indicate that 25-30,000 pirns per day can be processed continuously. (Muschamp Textile Machinery Ltd. are sole agents for the U.K. and Eire).

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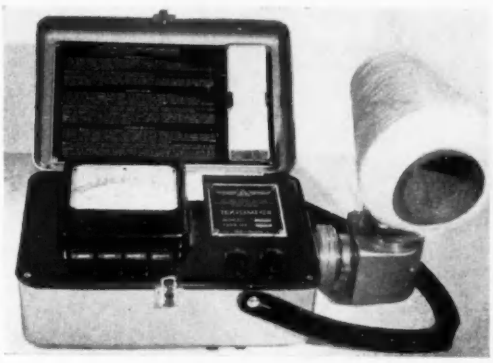
Mario Ge, Novara, Italy—Stand No. 1117. The new model automatic machine MPF/EAT for removing waste yarn from weaving pirns has several features. The stripping mechanism is equipped with spring-loaded multiple claws which first only loosen the yarn on the pirn tube. The yarn is subsequently removed from the tube by a special rubber padded extracting jaw, thus avoiding damage to the varnish or surface of the pirn tube. Both the multiple claws and rubber stripping jaws are easily adjustable. The waste yarn, after removal by the rubber padded jaws, is finally shifted from the jaws by a jet of compressed air generated from the small pump which is an integral part of the machine. The waste yarn is then deposited into a box and the cleaned pirns transferred by elevator into a pirn box or skip. Sole representatives are Muschamp Textile Machinery Ltd., Barnsley, Oldham.

* * *

Bound Brook Bearings Ltd., Trent Valley Trading Estate, Lichfield—Stand No. 1306. On this stand a wide range of oil retaining porous bronze bushings and parts is shown, also sintered iron oil retaining bushes, bearings and parts, together with sintered iron parts and components by powder metallurgy. Other features of the display include "Ferrocite" oil retaining iron valve guides, graphited bronze bearings, porous metal filters, sintered brass parts, self-lubricated bearings and bushes in a complete range for textile, etc., engineering applications of all kinds.

(left)
A recent installation of a complete dyeing plant by Thies



(right)
The Mahlo "Textometer" (R. S. Maynard)

B. Thies, Coesfeld, Germany—Stand No. 2604. The WG turbine pump on this stand is an axial pump, working on anti-friction bearings and is equipped with a slip ring packing, i.e. there is no longer any maintenance of the stuffing box packing. It works with great liquor quantities at high pressure and operates by changing the direction of liquor flow either from outside-in or conversely. Dyeing apparatus equipped with the new turbine pump can cope, it is said, with a much greater quantity of liquor. The Turbo Dyeing Apparatus Super B Type 800 exhibited is a high temperature dyeing apparatus suitable for processing of all kinds of fibres in the packages, beams, hanks, etc. The static pressure, produced by a pressure pump, remains constant, independent from the dyeing temperature, as all pressure fluctuations are absorbed by an air cushion in the pressure vessel. As many additions as required can be made during one dyeing process without having to let-off any dye liquor; thus an exact shade compared with the sample can be achieved. Change in liquor flow direction is effected by means of the turbo pump.

The system adopted in the case of the company's super Type 800 pressure dryer is to produce static high pressure by compressed air whereby the compressed air is circulated by a blower. After having passed the air heater the hot air is lead through the material either from outside-in or inside-out according to the position of a four-way cock. The hot air is saturated with moisture. The air containing moisture is led to the condensor in which the air is cooled down. The condensed moisture is taken out of the drying system by steam traps. The pressure dryer compared to other drying systems is claimed to reduce drying times and steam consumption without overdrying of the material.

The Type 175 laboratory dyeing apparatus serves for trials of all kinds to find out the latest dye proceedings. This laboratory model is a true copy of the large scale dyeing apparatus with expansion tank and a second pump for producing the static pressure. Change in the direction of the liquor circulation is effected by a special pump. The liquor is heated by electric heating rods; heating-up can also be done by a heat exchanger by means of steam or hot water.

This Type 800 carrier—made of special stainless V4A-steel—is arranged so that liquor is fed to the packages from the top and bottom plate. On 16 triangular spindle the carrier can take 160 conical cross wound bobbins having a maximum diameter of 160 mm. These bobbins are put on stainless steel tubes of 33/55/145 mm. and are separated by stainless steel spacers which are put between the bobbins when these are put on the spindles. The columns are fastened by winged screws in the top plate of the carrier. The U.K. agents are John Godrich, Richmond Hill Road, Birmingham 15.

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Chaudronnerie Marion, Valence, France—Stand No. 1119. The Model A.V.P. vacuum steam setting unit on show is specially designed for stabilising twist in synthetic filament yarns or for stabilising fabrics in beam form before or after dyeing. The machine can also be used for stabilising dyed hanks of yarn on the "Vigoureux" system within a temperature range of between 60-150°F. The machine comprises a cylindrical mild steel or stainless steel chamber capable of withstanding an internal vacuum of 74 cm. height of mercury and a pressure of 72½ lbs./sq. in. The steamer door is fitted with a quick-acting opening and closing device, with a special patented double-acting sealing ring ensuring a perfect seal against both pressure and vacuum.

The steamer is fully insulated and enclosed in a modern casing. To ensure uniform steam injection into the material under process a water seal vacuum pump is fitted with a pre-set temperature limit not to exceed 15 to 18°F. This permits a vacuum of an average of 70 to 73 cm. height of mercury to be obtained. To prevent any sudden disruptive expansion (and consequent over-heating) the steam is condensed on the framing of the steamer before it actually penetrates into the material under treatment. (Muschamp Textile Machinery Ltd., Bardsley, Oldham, are the representatives in the U.K. and Eire.)

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Fletcher Miller Ltd., Hyde—Stand No. 2314. This company's contribution to the solving of complex problems facing the textile industry, though unspectacular, is nevertheless important. On view are some of the oils, emulsifiers and chemicals, used in various stages of yarn and cloth production, which are available to the textile manufacturer and processor. Specialists from the works and laboratory, in addition to representatives, are on call to give advice on the application of textile auxiliaries and lubricants. The Haigh branch are featuring various oleines and spinning oils for the woollen industry.

Heinz Mahlo, (13a) Saal/Donau, Germany—Stand No. 1106. The "Textometer" electric moisture meters Type DMB and BMS on view work through a high resistance and the results, state the makers, are unaffected by any variation in the density of cops, cones and cheeses, neither is the measuring accuracy affected by different colour shades. The Type DMB is portable, powered by batteries and only weighs about 7 lbs. The instrument is used with a large variety of electrodes to measure moisture content of cops, cones, cheeses, hanks, bundled hanks, sliver, tops, bales of fibre, cloth, yarn beams, knitted garments, continuous filament yarn, etc. The scales are interchangeable and are supplied to suit each individual type of fibre, or fibre-blends. The Type BMS operates on practically the same principle but is provided with mains connections and generally designed for laboratory use, where it permits rapid and easy testing of large batches. The instrument is also useful for controlling the residual moisture content of warps and fabrics at the end of drying machines, when a special moisture indicating and controlling set is not provided. Sole agent for the Types DMB and BMS: R. S. Maynard, Langham Court, Fielden Park, Manchester 20.

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Manganese Bronze and Brass Co. Ltd.—Stand No. 2702. The company welcome inspection of their wide range of "Oilite" self-lubricating bearings, manufactured by the powder metallurgy technique, in alloys including bronze, iron/copper and iron. Structural parts, made by the same process in a variety of alloys including sintered brass, bronze and ferrous alloys, illustrate how machining costs are reduced and at the same time a high degree of accuracy is maintained. Tensile strengths of up to 25 tons are obtained with certain of the ferrous alloys. Additional features are exhibits of textile machinery giving examples where both bearings and structural parts are used. These include a jacquard unit, and both weft and warp stop motions, where just sufficient oil is needed without fear of oil contamination, by oil droplets, to the fabric in process of manufacture. A high speed "uptwister" spindle unit has "Oilite" bearings incorporated in the swing arm assembly where service is required without supplementary lubrication for an almost indefinite period.

STAND 1422

Abel Lees & Sons

WHEATFIELD WORKS — BARDSLEY — OLDHAM

ALL TYPES OF PLAIN and FLUTED ROLLERS

TELEPHONE: MAIn 6463

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FOLDS ROAD — BOLTON

SPINDLES, FLYERS and TAPE DRIVE UNITS

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Wm. Hampson (OLDHAM) Ltd.

LYON WORKS — OLDHAM

HEALD and REED MAKING MACHINERY

TELEPHONE: MAIn 3617

A typical installation of Westmorland Doublers producing Carpet Backing Yarns

The Westmorland DOUBLER

for Carpet Yarns ON CONE OR CHEESE

Stand 1422

The Westmorland Doubler can be adapted to process Tufted Carpet Yarns, Carpet Backing Yarns, Candlewick Tufting Yarns, etc., being fed by multiple end wound packages normally 8″ × 8″ on 1½″ bore tubes, but a 10″ traverse × 8″ diameter package can be applied if desired.

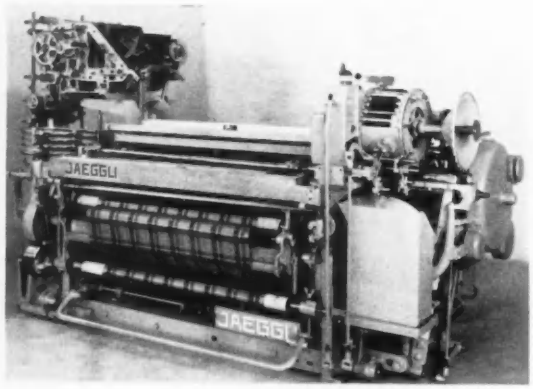
This means a completely knotless package can be doffed in cone or cheese form, ready for the tufting machine or other process. Maximum cone diameter 10″. Two turns for every revolution of the spindle are inserted, giving extremely high production, viz.: 3 fold 3s counts, inserting 3 T.P.I.

Approximate production per 44 hours from 36 spindle machine — 6,000 lbs. Woollen yarns and mixtures can be successfully processed on the Westmorland Doubler. We shall be pleased to run sample packages on request.

DODD
TEXTILE MACHINERY

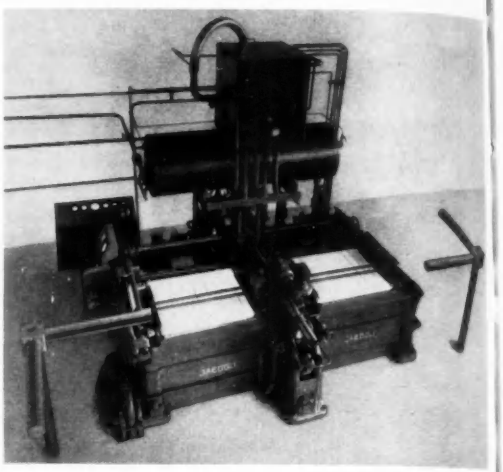
The Westmorland Doubler is manufactured under agreement by

S. DODD & SONS LTD.
LYON WORKS OLDHAM
Telephone: MAln (Oldham) 3617



(left)
The Jaeggli SWAS 4-1, 54 ins. reedspace pirn changing automatic

(right)
The Jaeggli, Type MM-6, new hydraulic hank mercerising machine



Jakob Jaeggli and Cie., Winterthur, Switzerland—Stand No. 2002. This well known company exhibit their automatic pirn changing loom (Type SWAS 4-1), of 54 ins. reedspace, with new elements which prevent loose weft ends being inserted. The temple thread-cutter, controlled by curved cam and operating downwards, without fail cuts the threads twice near the selvedge immediately after pirn changing has taken place and the loose ends are accurately conveyed away by a suction device operated only during the change. Their pick-at-will loom (Type SWUD 4-4) of 46 ins. reed space, for up to seven independently operating shuttles, is fitted with photo-cell reflection feeler. The three-button go-and-stop motion of the mechanical brake and coupling, operating over a "Servo" gear for starting and stopping the sley at will in front and back position, facilitates and speeds up attendance. The roller bearings on the crank and cam shafts as well as the sley carrier need little maintenance and the push-button stop, also arranged at the rear, facilitates the weaver's work.

The firm's hydraulic hank mercerising machine (Type MM-6) has been improved by multiple motor drive. Thus, the speed of the cam shaft is regulated from an interchangeable curved disc without steps. In addition, the cam shaft can within the working cycle and by means of a retardation relay adjustable in the limits of 3 and 60 secs. be stopped during any of three phases of the mercerising process. An electrical recorder indicates the progress of yarn tension on a diagram.

For hydraulic transport and lifting the new Type HW-S jack merits special attention. Two independent beams of up to 31 ins. dia. can be put simultaneously into a Sulzer weaving machine. The guide-lever, which can be attended from three points, facilitates manoeuvring of the jack, and it requires little space. The U.K. agents are G. V. Massau and Co., Fulshaw Park, Wilmslow.

* * *

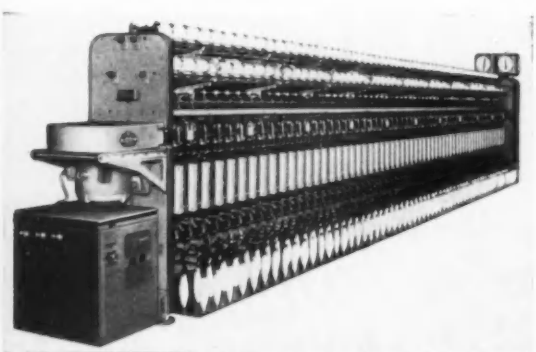
Ernest Scragg and Sons Ltd., Macclesfield—Stand Nos. 1701, 1801. The latest model of the "Crimpspin" range, electronically controlled, operates at very high speed. Positive controls of temperature, tension and twist, which can be instantly adjusted to suit all thermoplastic yarns. The DLX machine for the production of relaxed crimp yarns, provides an infinite variety of effects suitable for knitted outerwear, weaving yarns, etc. Positive controls of temperature and overfeed, and a supply creel of advanced design.

The SM4 heavy package uptwister for low-twist acetate yarns, produces headless packages up to 4 lbs. capacity, twisting direct from spinner bobbins. Special traverse mechanism providing up to 100 cam revolutions per minute. The SU high speed uptwister is for twisting direct from 1¼ lbs. spinning packages including nylon, "Terylene," etc. or from rewound double flanged bobbins. Straight/taper cheese or bobbin take-up. Special features include heavy duty spindles with large capacity oil reservoir and ceramic yarn guides. Spinning space to accommodate long packages.

S. and E. Scragg Ltd., Macclesfield—Stand Nos. 1701, 1801. The DLA medium-heavy doubler on view produces up to 3 lbs. packages. It is designed to process hosiery, weaving, knitting and sewing yarns in both natural and synthetic fibres and special features include new heavy spindle, improved stop motion, travelling balloon wires and multi-package cam unit. The Atlas heavy doubler is an entirely new model producing packages up to 8 lbs. It is fitted with many new features essential for heavy denier work, including a unique spindle drive. The JHS vertical spindle winding machine has many improved features, including provision for building cop or bottle bobbin, or parallel build. Special tension arrangements facilitate the use of all supply packages.

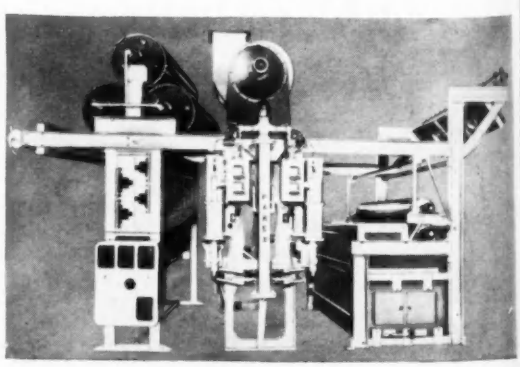
* * *

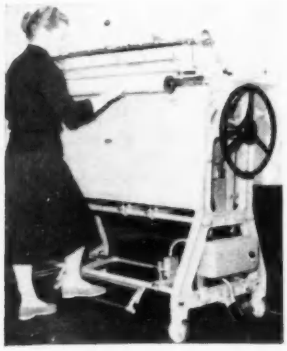
Ernest Turner and Co. (Salford) Ltd., Salford 5—Stand No. 1316. The following is a list of the specialities which the firm are showing. The "Parex" two unit surface combustion high speed singeing unit, fume hood and exhaust outlet. The "Parex" latest type revolutionary small mixing unit and pressure volume selector. Revolution indicator. Automatic fuel cut-off. Automatic burner ignitor. Interlocking control starter panel and latest improved type singe burner. Illustrations of ancillary equipment can also be seen and printing blanket and paper felt singeing equipment is illustrated.



(left)
Scragg's CS3 high speed machine has positive control of temperature, tension and twist

(right)
The "Parex" two unit, high speed singeing machine





Boucher/Hill tube frame threading machine

Boucher and Co. Ltd., Kidderminster —Stand No. 2109. The firm's latest hydraulic beaming machine operating on this stand is a machine of particular interest to the carpet trade, as the constant periphial beaming speed is maintained by a totally enclosed H-gear unit. It also features constant, and at the same time, adjustable hydraulic pressure, which is applied to the tension rollers, and a constant yardage is maintained by use of the Walker yardage recorder which automatically stops the machine when it has reached any pre-set yardage. Beams prepared by this method run off together at an even tension.

The Boucher/Hill patent tube frame threading machine. Embodies a number of labour saving devices, and this 4/4 machine will thread any tube frame from 2/4 to 24/4 in width, with the addition of the necessary extension arms. No adjustments are necessary when changing from one style of tube frame to another. Features which make this machine fast are: (*a*) the spring loaded hook box; (*b*) the tube frame being threaded whilst the spool is held in its holder and (*c*) the strive comb that puts the ends correct for threading and takes out all the end strive. The latest machine is operated by a foot pedal and has automatic tube frame clamping.

The Console card stamping machine is a machine where all the brain work has been taken out of card stamping; any one can be trained in stamping in a few hours. The machine displayed embodies a new worm reduction drive, and carries the automatic punch cancelling device. Visitors have the opportunity of seeing this actually in operation on the stand.

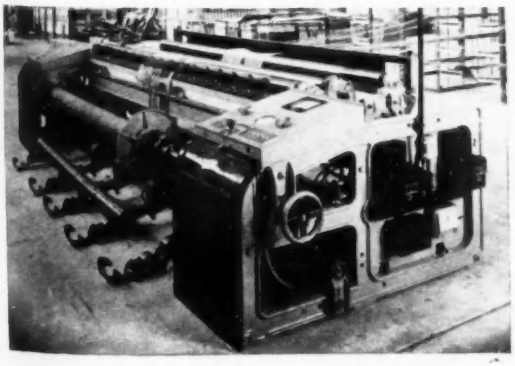
Ruti Machinery Works, Switzerland, —Stand No. 1102. The weft mixing automatic loom (SINZA/2) on view is basically that of the automatic bobbin changing looms of the S-type (SINZAW/4), but feature a circular battery for one single weft material. Extreme evenness of the fabrics woven can thus be obtained by inserting two picks each from the upper and lower shuttles alternately. This type is also provided with a shuttle eye cutter, a device especially conceived to prevent drag-ins. The four-colour automatic bobbin changing loom for silk and man-made fibres (SINZAW/4) is the result of a long period of research on multi-shuttle bobbin changing automatic looms. The "horse-shoe" shaped battery for the automatic four-colour bobbin change incorporates the following outstanding features: (*a*) electro-magnetic control, (*b*) positively controlled shuttle eye cutter, (*c*) fast bobbin change by means of a lignostone hammer, (*d*) battery to take 76 bobbins, (*e*) cloth take-up quickly altered from indirect to direct operation, both contributing to uniformity of the fabric woven.

In the high-speed multi-colour automatic loom (BANGTW/4) a sturdy drop-box frame has provided increased stability of the loom, and spindleless picker control permits higher speeds with lower picker wear. The floating boxs wells provide extended braking distance, reducing strain on the shuttle. This loom can be provided with a simple cam shedding motion as well as with dobby or jacquard machine. The high-speed automatic loom (BANLXK) has many notable features including a loose reed device, which now permits heavier fabrics to be manufactured and guarantees a smooth stopping of the loom, should the reed be pushed back by a shuttle caught in the shed. Even at extremely high speed the bobbin change takes place as reliably as ever, and without the application of greater pressure, thanks to the flexi-shuttle and ringless bobbin. Floating shuttle box swells without fulcrum, provide extended braking distance and put less strain on the shuttle.

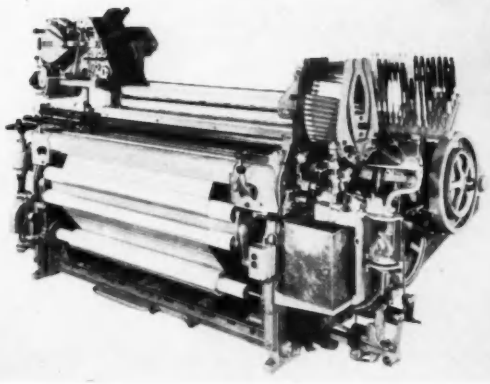
The positive dobby (RGH 2), shown for the first time, offers versatility from the new method of driving the knives which move the hooks without play. Features are: (*a*) heavier fabrics can be woven without difficulty, (*b*) very safe harness control, the hooks being held without play during their motion and in the final position of the knives, (*c*) increased flexibility because there is less work at warp change. (U.K. agents are Geoffrey E. Macpherson, Nottingham.)

Armstrong Cork Co. Ltd., Aldwych, London, W.C.2—Stand No. 1408. A map of the world forming the background for the stand highlights the activities of a company whose whole display sets out to indicate the world service they offer spinners. The stand carries a comprehensive range of products for cotton, silk, synthetic fibre, woollen, worsted, jute and flax spinning, while many items are on view for the first time. Among the new products is an anti-static range of cots—designed to deal with the problems created by the growing use of synthetic fibres on frames which utilise non-metallic cap bars and other methods of eliminating metal to metal contacts. Part of the function of the four cots in this range is to carry off static charges and their colour variation—distinguishing the particular Shore hardness—is strongly marked for purposes of identification. This new anti-static series is part of the full range of synthetic rubber cots, straight and cork-loaded, designed for cardroom and spinningroom machinery. Now in an advanced stage of development and field-testing will be three twin-coloured synthetic rubber high-draft aprons. These are the latest additions to the standard synthetic rubber cord-reinforced range of aprons, Nos. 700, 750, 7075, which will also be seen. All are available in a full range of widths and i.d. sizes in standard or non-standard thicknesses.

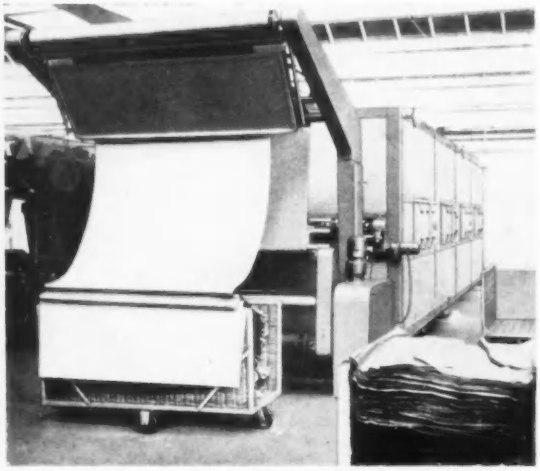
Among the other exhibits are a range of lined synthetic rubber rings designed to suit rollers for the following applications: Bradford system worsted spinning; Raper "Autoleveller" drawbox; French and Bradford drawing systems; jute rove and sliver spinning; jute drawing, flax rove and gill spinning together with flax drawing. Also on show will be lined rings for strapping machines and unlined rings for cloth meters while composition cork bent strips, the traditional cover for Bradford system spinning and drawing; synthetic rubber trap twister sleeves for worsted doubling; synthetic rubber coverings for carrier rollers on worsted machinery, will be there, too. Resilient covers for both flat and revolving top clearers on cotton machinery; cork ribbon—plain and gridded —for beaming drums and loom take-up rollers; "732" synthetic rubber ribbon 2 ins. wide for application to loom take-up rollers, flat knitting machine take-down rollers, cloth folding and inspection machines can also be inspected.



(left)
Boucher's latest hydraulic beaming machine



(right)
The Ruti SINZAW/4 four colour automatic pirn changing loom



(left)
The E.G.W.-Vits "Lay-on-Air" horizontal dryer can be adapted to many materials

E. Gordon Whiteley Ltd., Morley—Stand No. 2209. The main exhibit by this well-known firm is the E.G.W.-Vits horizontal textile dryer. This machine incorporates the "Lay-on-Air" system of drying, in which the material being treated is supported between cushions of hot air, without any other supports or guides. This, the company states, makes it eminently suitable for drying finished or impregnated cloth where contact with any part of the machine would spoil the finish. Another advantage is elimination of transverse ripples. With the "Lay-on-Air" system the air streams impinge on both sides of the cloth in numerous single spots which result in only localised elastic vibrating movements.

The "Lay-on-Air" dryer can be adapted for drying many materials other than textiles, and also for various treatments such as shrinking, condensing and polymerising. Synthetic fibres, paper, latex coatings are among the many materials which can be processed using the "Lay-on-Air" system.

In addition to the main exhibit various accessories and components of the E.G.W.-Vits stenter will be on show. There will also be a model of the E.G.W. "Velocitair" tentering machine, and a selection of photographs showing all E.G.W. products.

* * *

Gilbos, s.p.r.l., Ateliers de Construction, Alost, Belgium—Stand No. 2010. Two from the "Gilbos" range of high speed winding machines, for the spinning, weaving and knitwear industries, on view include the Type RCN high speed cone and cheese winder, suitable for winding cotton, woollen, worsted, rayon, flax and hemp yarns on to cheese or cones 3°30′, 4°20′, 5°57′ and 9°15′, at speeds up to 1,100 yds./min. The machine winds packages of 5 and 6 ins. traverse, up to 10¼ ins. dia. The anti-ribboning device, power driven dry waxing arrangement, adjustable cop-holders to reduce the unwinding tension to a minimum, tachometers, speed variators, and travelling blower arrangement are only a few of the many features of this machine. The Type UC hank winder also in operation, is for winding cotton, woollen, worsted, rayon, flax, etc. yarns from skeins, hanks or muffs on to cheeses or cones 5°57′ and 9°15′ at high speeds. Fitted with anti-ribboning device, sensitive disentanglement stop-motion, positively driven yarn feeders, power driven dry waxing device, speed variator and expanding metal swifts, this flexible machine is suitable for winding at speeds from 110 to 525 yds./min. Another feature of the stand is the new high speed type GF cone winder with patent high speed reciprocating traverse for the production of 9°15′ cones. Accessories on view include the yarn cleaners Type "Easy Cleaner," slub-catchers Type "Easy-T-Cleaner" and expanding metal swifts. Sole agent in the U.K. and Ireland: R. S. Maynard, Langham Court, Fielden Park, Manchester 20.

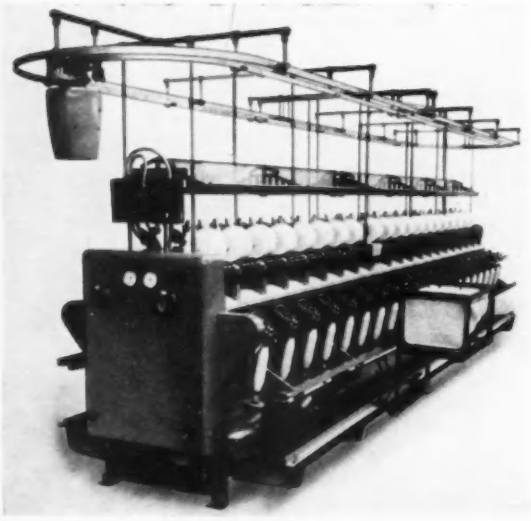
* * *

Monsanto Chemicals Ltd., London, S.W.1—Stand No. 2401. The main feature of this display is Syton W20, a spinning assistant to increase yarn strength and improve uniformity on woollen, worsted and modified systems. Shown in conjunction with it is a new spraying device which assures an even application of emulsion. Designed for use with the Raper "Auto-Leveller," the sprayer can be adapted for use with other equipment; it is simple to operate and maintain. Syton W20 is also an anti-soiling agent for carpets. Other products featured will include Syton 2X, an anti-slip finishing agent, which gives increased strength and abrasion resistance; Santobrite, a short-term preservative of fabrics against mildew; styrene/butadiene lattices, a backing material for tufted carpets; and Catalyst AC, a curing agent for melamine and urea resins.

* * *

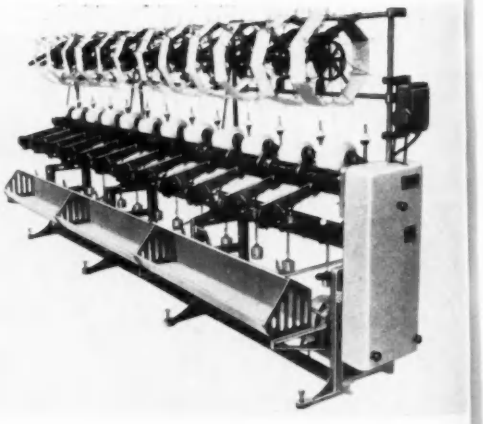
Rawlplug Co. Ltd., London, S.W.7—Stand No. 1624. A wide range of Rawlplug fixing devices and tools can be examined and in the range of tools the latest development is the "Vibroto" masonry drilling machine. In addition to the range of carbide tipped drills the "Rawlcrete" concrete drill is demonstrated. This is a cruciform drill with the tungsten carbide cutters brazed to a spiral fluted tubular stem. The cutters remove a small circular area leaving the core to be ejected through the centre of the drill.

The "Rawlplug" screw-fixing device is also shown. This simple fibre plug is widely used in the textile industry for fixing electrical equipment. For heavy duty work the "Rawlbolt" is made in all sizes from $\frac{3}{16}$ in. to 1 ins. and up to 12 ins. long. The "Rawlbolt" requires only a small hole and is not grouted in. For fixing plant and machinery in wet and humid places there is the range of "Rawlplug" devices specially made for this purpose.



(left)
Gilbos high speed cone or cheese winder

(right)
Gilbos hank to cone or cheese



The Plutte Koecke "Hacoba" automatic quill winder

"Hacoba" fully automatic pira winder with hopper feed (Crowther Ltd., Leicester)

Plutte, Koecke and Co., Germany—Stand No. 2205. On view are three of the fully automatic pirn winder type SSA with automatic hopper feed, winding cotton and filament synthetic yarns on to automatic pirns. An automatic quill winder for crosswound or parallel wound smallware weaving quills has special giant magazine and yarn density control. The automatic braid bobbin winder shown for crosswound or parallel wound braid bobbins or tubes is equipped with special pirn tray full package doffing attachment and yarn density control. Represented by Crowther Ltd., Leicester.

* * *

Aerosol, Alfred Zeffner and Co., 28 Wiener Strasse, Hanover, West Germany—Stand No. 2001. This firm's latest humidifier disperses water on a large-surface centrifugal disc which throws an invisible moist film against baffles. These separate the water into microscopic aerosols, which rise into air and into fine mist deposited in the basin. A blower on the top passes air through tubes into the outer basin and, through numerous tiny holes, a non-mist 20-yd. dia. air umbrella is created. Used with normal heating and ventilation methods, the apparatus is said to condition air automatically to an accuracy of 1% of the required setting. U.K. agents are Coates Smith Ltd., 33b Curzon Street, Derby.

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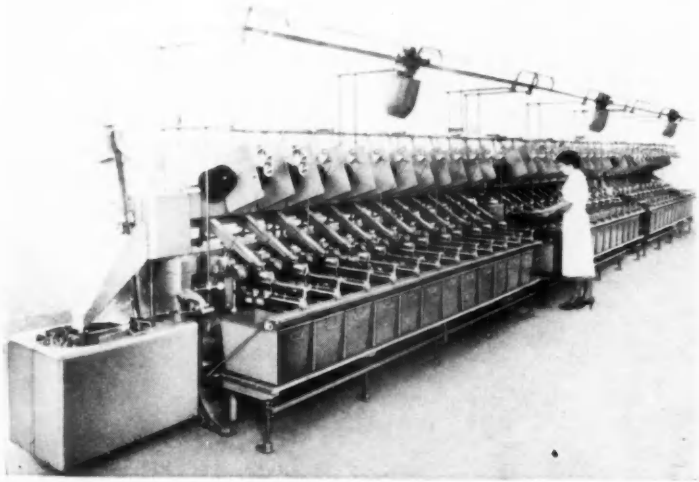
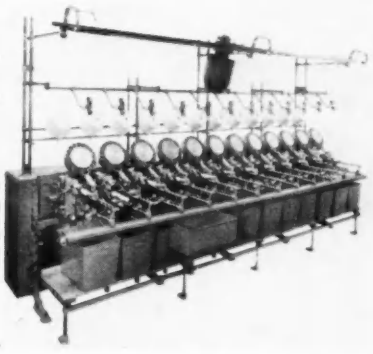
Schweiter Ltd., Horgen, Switzerland—Stand No. 1508. A large selection of machines gives the trade an opportunity to study the new features and developments. For weaving mills the company show a super-automatic pirn winder with automatic feed device for empty pirns and automatic packing device for fully wound pirns, for cotton, wool and linen. Additional machines are an automatic pirn winder with individual multicell-magazine for the empty pirns, for cotton and wool; an automatic pirn winder with individual multicell-magazine for the empty pirns, with automatic pin boarding device, for rayon, nylon etc.; an automatic supercop-winder with automatic feed device for initial cones, for wool, cotton, linen; an automatic supercop-winder with individual magazine for the initial cones, for wool, cotton, linen; an automatic hollow-cop winder for jute, worsted, etc.; and a cone winder, "Rapid-Coner," for cotton and spun rayon.

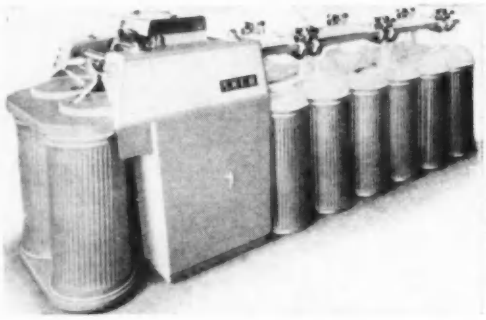
The following will interest knitting and hosiery mills. A cone winder, "Vario-Coner," to unroll from hank ryces, for cotton and wool; a precision cone winder, "Monofil-Coner" for winding synthetic yarns on to pineapple cones; and a cone winder, "Vario-Coner," and precision cone winder "Monofil-Coner." U.K. agents, Livesey and Aspinall Ltd., Manchester 3.



Schweiter super-automatic pirn winder with automatic feed and packing

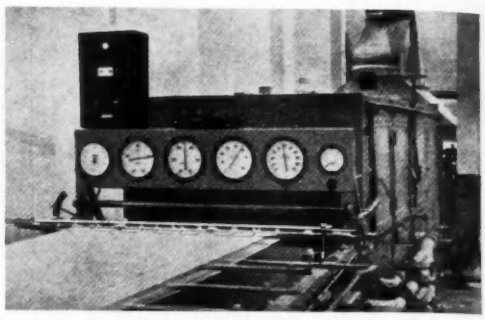


Schweiter multi-cell pirn winder



(left)
The S.A.M.C. high speed intersecting pin drafter

(right)
Drytester "Humidocontrol" on a well-known sizing machine

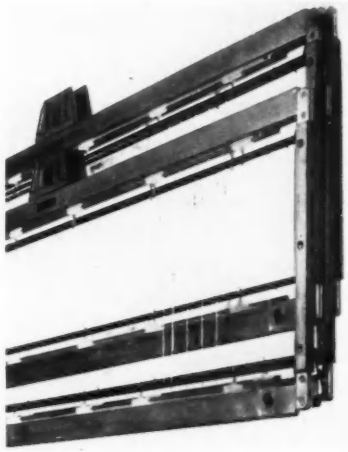


Societe Alsacienne de Constructions Mecaniques, Mulhouse, France—Stand 1209. The high speed intersecting (Model IR) pin drafter on view, for gilling operations before and after combing, is a high speed machine with a three roll drafting unit, large can sizes or ball delivery, feeding from either can or ball. A special feature is that the machine can give 90 automatic gearing combinations for drafts from 5 to 15, allowing intervals as fine as approximately 1 to 1·5% between different draft ratios. This machine is fitted with the new "Hygroregulator," a device for controlling sliver levelness which will be used in the combing section on the finisher gill as well as in the drawing section for spinners on the gill. The new high speed "Perl" rectilinear comber is a machine of new design with the latest up-to-date features and is on show in England for the first time. The machine is used for combing wool and/or synthetics and mixtures. A detailed article (*T.M.*, Sept., p. 465) gave constructional and operating features. It is claimed that 26 to 32 lbs. of top per hour can be obtained at maximum speeds. These two machines constitute the S.A.C.M. system of combing. The system may be used with or without a lap former.

S.A.C.M. also exhibit the cone gill reducer and a high draft fine flyer. These two machines together with the Model IR pin drafter and followed by a high draft ring frame form the short processing spinning system of S.A.C.M. They can be used in various combinations and the machines may be used for all systems of processing in so far as they combine the Bradford, American and French systems in their varying use. A high draft ring frame (Type "CFL" is also on show for the first time in England. It is a new type of machine driven from the centre of the frame and the "Pneumafil" arrangement is also placed in the centre of the machine. The machine can be made with a larger number of spindles than usual, due to the centre drive, and the length of the drive shaft, fluted rollers, etc., is still shorter than that on conventional frames. The latest advantages of ring spinning have been incorporated in the machine and the frame width is only 39 ins. The machine has an apron drafting zone. Macart Textiles (Machinery) Ltd., Swan Arcade, Bradford, are the agents in the U.K. and Eire.

* * *

E. Frolich Ltd., Mühlehorn, Switzerland—Stand No. 1803. Included for the first time is a newly developed all-metal slider heald frame with easily detachable and interchangeable side-supports. A feature of the frame are light metal corner pieces, a construction which is very practical. Frohlich frames are made for all looms irrespective of make, including topless types. For fine dobby divisions and wide looms light metal staves are available with plastic protection



Frolich all-metal slider heald frame

to avoid metallic abrasion. The feather-light plastic slide hooks on view avoid warp streaks in the cloth. A speciality shown is a sturdy all-metal leno shaft with steel side supports. Further exhibits include the already well-known flat steel healds with rectangular eyelets and "stainless type" drop wires for all kinds of warp stop motions. The agent is A. E. Aspinall Ltd., Manchester.

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Stutz and Cie, Switzerland—Stand No. 1903. Makers of reed cleaning machinery, shuttle trueing machines, inspection tables, etc., this firm show their latest bobbin stripper capable of cleaning up to 150 bobbins per min. Equipped with a bobbin feeding device and yarn cutter, this rate can be stepped up to 150 per min. Designed to strip all types of yarns from the finest to the coarsest, the machine is double-sided and operates on bobbins of wood, aluminium, plastic, hard paper, etc., equally well. The drive is by belt from transmission line or direct by motor and the power consumed ½ h.p. (G. W. Thornton and Sons Ltd., Cheadle, are the U.K. agents).

Drytester S.a.r.l., Switzerland—Stand No. 1012. The "Humidocontrol" moisture measuring device for all textile dryers, with all the accessories for speed control and graphic recording is featured. Already well introduced these devices are simple to handle. The newest type on view features an advanced and combined measuring principle which is claimed provides exact control and measuring of overdried material, as well as damp and even wet material. The makers point out that the tolerance over the whole scale with 0·5% ± remains from a moisture regain below 1% up to every desired moisture regain. Besides the graphic recording the automatic speed control is shown which permits smooth speed control avoiding all hunting of the machine. Agents in the U.K. and Eire are Barke Machinery, 100 Portland Street, Ashton-u.-Lyne.

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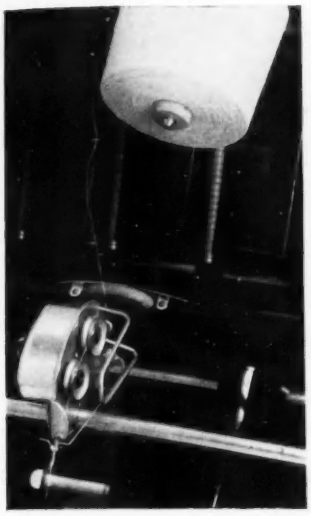
Scharer Textile Machine Works, Switzerland—Stand No. 1602. The high speed fully automatic pirn winders—"non-stop" models HHBEZUV-CF and HHBEUV-CF—shown here are capable of spindle speeds up to 11,000 r.p.m. For cotton and spun rayon yarns they have automatic feed of the empty pirns; automatic stacking of the wound pirns into single or double boxes, speed variator, and dust exhauster and fan. The company's fully automatic model KBNSAV/2-CLF for very coarse cotton yarns for tyre, etc., cords also has automatic feed of the empty pirns and dust exhauster and fan. The "non-stop" model BNSV-CLF pirn winder for cotton, spun rayon, woollen and worsted yarns, linen and jute is similarly equipped with dust exhauster and fan. Designed to run at speeds up to 7,000 r.p.m., the fully automatic non-stop pirn winder SCE-SSKF for silk, rayon and all synthetic fibres—nylon, "Terylene" etc., has automatic feed of the empty pirns, automatic stacking of wound pirns and a speed variator. The pineapple cone winder on show—PA-SSRPL—is for winding nylon, "Terylene," etc. of the finest deniers (G. W. Thornton and Sons Ltd., Cheadle, are the U.K. agents).

* * *

Thomas Bolton and Sons Ltd., Mersey Copper Works, Widnes—Stand No. 1421. Well known throughout the whole of the finishing section of the industry this old-established company have an extremely interesting display of high precision copper printing rollers for printing plastics, calico, dress materials, handkerchiefs, wallpapers, floor coverings, etc. Information on any aspect of this will gladly be supplied by the staff in attendance.



Oiling device on the Autocopser ASE

W. Schlafhorst and Co., Germany—Stand No. 2603. A number of valuable improvements in their machines are announced. The BKN cone and cheese winder for woollen, cotton, spun rayon, and other yarns has a special yarn-safety-groove incorporated in the grooved cylinder, which with a built-in tension equalizer prevents laps at practically any speed. Yarn that previously had to be wound fairly slowly can now be wound much faster. The unwinding accelerator which allows the yarn to be drawn from the cop or package more easily is now presented in a tubular form. These two improvements permit the newly-designed BKN machine to increase its speed from 1,300 to over 1,600 yds./min. An electronic yarn clearer made by Qualitex, Enschede, is also shown. In collaboration with them, Schlafhorst have developed a clearer-tension unit by which the yarn, still self-threading, has a uniform tension and the device remains self-cleaning. The BKN winder has also been further developed for special purposes but the design has not been fundamentally altered. The Model BKS produces sun bobbins with single end yarn for doubling and the Model BKF allows the machine to be used in a new style for assembly winding. Both are of considerable interest to all doublers.

The IKN cone winder on view produces cones with increasing taper for the hosiery and knitwear trades. In most basic details it is similar to the BKN. It is quiet running and maintains a high speed, at the same time increasing the angle of wind as the package size increases. It incorporates a waxing device, a pattern forming prevention device and travelling blower for removing fly. It also has the unwinding accelerator and the empty bobbin conveyer etc.

The fully automatic pirn winder the Autocopser ASE has duplex dust removal equipment, i.e. a travelling blower specially fitted to the machine, combined with an effective suction unit. This duplex removal equipment contributes largely to the technical perfection of the machine and also improves the attractive appearance of it to a marked degree. In travelling to-and-fro on the pirn winder the blower actually regulates the suction unit in sections, so that the full force of suction is concentrated to only a few spindles at a time. The Autocopser ASC is for synthetic continuous filament yarns and the wound pirns are automatically placed on to pin boards. In both of these models, each winding spindle works independently and irrespective of the others. Maximum automation allows spindle speeds of up to 12,000 r.p.m.

In the universal beam warper EZD, two machines are really combined in one, because it will wind either normal warp beams for direct sizing or dye beams of strictly uniform density and adjustable to any degree of softness desired. The machine has direct beam drive for infinitely variable hydraulically regulated, constant warping speeds up to 660 yds./min. High performance and versatility are twin features. Representative for England and Scotland, John Godrich, Richmond Hill Road, Birmingham 15.

* * *

Atkins Fulford Ltd., Sudbury—Stand No. 1025. The main structure of the Type WM36 warping machine on view is of electric welded mild steel fabrication, strong and rigid, and designed to take the strains and stresses where they occur. All drives are totally enclosed, gears run in oil baths, outside ballraces are enclosed type sealed against dirt. There are two separate main motors, one driving the drum, and one the beaming head. These two being of the slip ring type are speed controlled through a bank of three resistances which makes it possible to have the motors with direct reduction drives to the drum or beaming head.

The head and tail stock for the beaming side run on ballraces in machined channels; they are interconnected by a worm screw, a handle of the tail stock controls the width between the two and moves the head and tail apart to allow the beam pikes to be entered. The head stock is positioned relative to the drum by a hand wheel and vernier adjuster.

The drum is built-up on a 2 ins. dia. main shaft, it is built with 14 hardwood rails each bedded in an aluminium channel mounted on 10 spider wheels. The spaces between the rails are panelled in. Warping is done over a saddle carrying the leasing mechanism and reeds, the saddle runs on a machined bed and is driven by an accurately cut lead screw, mounted on the saddle is the section setting device, accurate and easy to use. The saddle is positioned to the drum by a hand wheel, and final adjustment by a vernier on the front reed.

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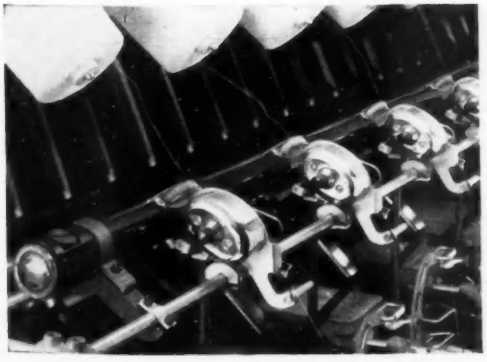
Trion and Vosseler, Schwenningen a/Neckar—Stand No. 2317 show a range of precision-made counters, including single and multiple shift pick counters, with and without pre-determination, also an attachment for fitting to existing pick counters to convert them into a pre-determining unit. Ticket printing counters and impulse counters are also on view.

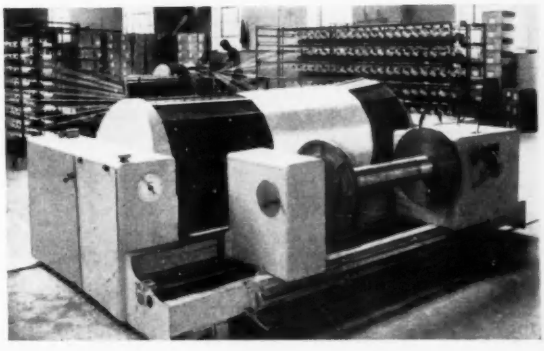
* * *

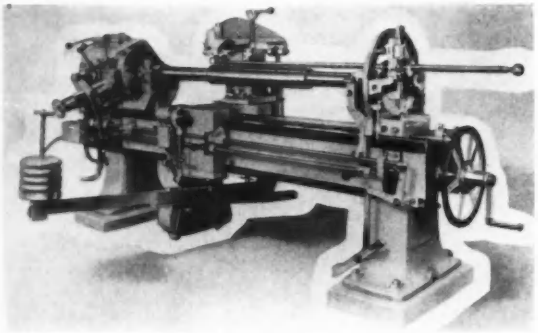
Erhardt and Leimer o.H.G., W. Germany—Stand No. 2313. Cloth guiding appliances for finishing machines, in particular guiders, mechanically, electro-magnetically and air compressed operated types are featured. Special interest attaches to an electronically operated type with a fully automatic widening arrangement which will always set itself to the required width for the material to be guided. An entirely new type, waterproof, for guiding exceptionally heavy and soaking wet material is also to be seen. In addition, there is on view a guider with a motor booster which is extremely effective on open width knitted fabrics and fabrics with slack selvedges. The booster can be supplied separately for fitting on to the firm's existing standard cloth guiders, Type KF4. In full operation is the well-known feeding arrangement for stentering and similar machines, mechanically and electronically operated; the latter dispensed with lenses and mirrors. Further items include a reliable, highly sensitive ferrous metal detector, motorised selvedge uncurlers, a seam detector and an automatic weft counter. Enquiries to M. J. Tendlow, 16 Lindisfarne Road, Shipley.



(left)
View of tension and oiling devices from opposite sides on Autocopser ASE

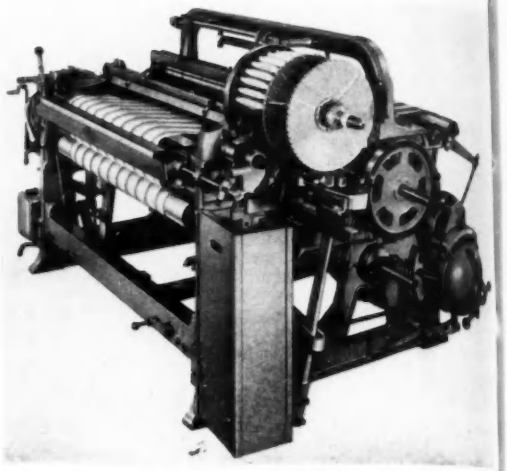
(right)
The Type WM36 warping machine in which the gears of the enclosed drives run in oil





(left)
The latest pattern MS mill engraving machine

Kovo Ltd.



(right)
The Elitex Type F.44/1 automatic cotton loom is available in four different reed widths

Kovo Ltd., Czechoslovakia—Stand 1805. Designed to weave light and medium weight fabrics—especially fine poplins—the Elitex F44/1 automatic loom is a pirn changing model available in 110, 120 and 142 cms. reedspace. Supplied with a device for plain weaving, or with an auxiliary 5-shaft treading motion for crepe weaving, it can be adapted for dobby or jacquard work. Simple in design, the loom will run at speeds of 170 to 220 p.p.m. depending on the material, and will weave cloth having 10 to 40 picks per cm. The magazine holds 26 pirns and standard equipment includes warp-stop motion, 3-shift counter, etc.

The latest MS mill engraving machine has many features including 12 steps in spindle revolutions through the employment of a 3-step motor. Capable of any pitch adjustment from 0·1 mm. to 30·000 mm., the quick acting advance ensures fast adjustment of the engraving mill into the required position. (The U.K. agents are Macart Textiles (Bradford) Ltd., Swan Arcade, Bradford 1).

* * *

William Whiteley and Sons Ltd., incorporating J. Charlesworth—Stand No. 2403. Several new designs attract attention on this stand. The "Shear-O-Matic" shearing machine with three shearing heads, two for face cutting and one for shearing the back of the cloth, is constructed in separate units to enable additional shearing units to be fitted. Amongst many new features is the infinitely variable speed of the draw through giving shearing speeds of 30-180 ft./min. No turnover of the cloth is required under the machine when shearing both back and face. A new patent cut adjuster is fitted which gives ultra accurate readings when setting the cutting part. The shearing cylinders are fitted with oscillating motions and all high speed shafts run in ball bearings and are dynamically balanced. Flock is extracted through a patent hollow stock which instantly removes all the flock from the shearing point.

A new design of suction extractor which can run as a separate machine or in conjunction with a drying machine and can be arranged to work either on to batches or cuttle the piece, is equipped with a four speed motor giving speeds of 10, 15, 20 or 30 yds./min. A new type of automatic air valve is fitted so that if the machine has to be stopped when the material is passing through, the suction action is cut out thereby eliminating the possibility of marking the cloth.

The company's well-known fancy twisting machine with Hogg's patent knopping motion, which enables an unlimited variety of fancy yarns to be produced, has an infinitely variable speed drive to the draw rollers and spindles. Also exhibited is a new mule, a large carpet shearing head, a range of spindle rails, washing-off attachment and a comprehensive range of gills and pins.

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Grob and Co. Ltd., Switzerland—Stand No. 2310. The light metal slider heald frames in this display can either be equipped with all-metal slide hooks or with polyamid gliding part. Threaded on the frames are "Novo" duplex all-purpose flat steel healds which can also be supplied in stainless steel. In addition, the latest "Grobtex" frames without slide hooks are on view. These can be equipped with "Grobtex" healds with the well known Grob eyelet, or the keyhole type.

Weaving managers and overlookers will find the company's electric warp stop motions—for silk KFW 1000 and for cotton KFW 1100—especially interesting. The stop motion for silk can, according to requirements and depending on current fashions, easily be converted to a cotton type or conversely a new heavy pattern KFW 1200 for cotton, also being shown, is specially suitable for coarse cotton, linen or similar heavy fabrics. All Grob motions can be equipped with the new contact-protection relay Combi Sensitor giving the apparatus a hitherto unattained sensitivity. The "Grobat" rustproof-finish drop wires give excellent results even under the most difficult conditions. The British agents are M. H. Spencer Ltd., Priory Mill, Coventry, and Sam. Smith and Son (Healds) Ltd., Eccleshill, Bradford, Yorkshire.

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White Child and Beney Ltd., Shepley Works, Audenshaw—Stand No. 1015. The spring-loaded platform truck exhibited has been developed for roving bobbins, cops, etc. The contents are always presented at the top of the truck as the spring-loaded platform is automatically adjusted in height by any increase or decrease in weight of contents. A feature of the seamless card or sliver cans in the display is that the joining is done by a new process resulting in a smooth, snag-free interior.

A specimen of the company's new fibreglass resin trucks on view is the result of development in design, materials, and processing over the past three years. The range of fibre containers will include some of the boxes designed with particular accent on weight reduction by elimination of seam angles, wood rails, etc., without loss of strength. Improvements in design also cover methods of stacking and nesting.

A small selection from the firm's polythene containers can be examined and an interesting point is the availability of large size containers in comparatively small quantities. This is made possible by the new Engel moulding process. In addition, the specialities will also include some well established standard containers such as a popular doffing box on wheels.

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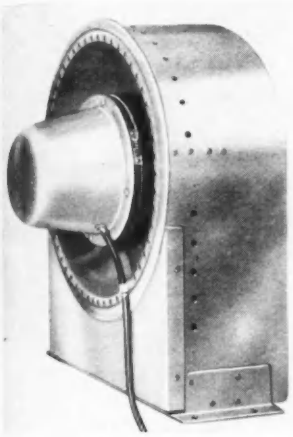
Radcliffe Engineering Co. Ltd., Radcliffe—Stand No. 1104. Manufactured under "Paerse-Laing Ltd." patents, a new machine for the production of floor coverings and pile fabrics is claimed to offer exceptionally low cost and extreme versatility in comparison with conventional carpet weaving and needle tufting methods. This machine is capable of producing loop pile carpets from conventional carpet yarns spun from wool, man-made fibres, or blends made on any of the existing spinning systems—even the lowest grades of woollen spun carpet yarns can be processed—whilst a most interesting range of floor coverings with a loop pile surface composed of uniform fibre webs can be manufactured. The machine can be seen producing loop pile carpet from various yarns, and samples of floor covering are available for inspection. No textile backing is used in the fabric construction, the pile tufts being firmly anchored in a layer of tough resilient P.V.C. The machine can be supplied from normal or magazine cone creels or from yarn on one or more beams.

The main functional part is a special conveyor belt which serves to hold a sheet of pile material in loops of any designed size and at the same time carry it forward through the machine. At the feed end the yarn is drawn through a fixed comb by a pair of rollers and then passes through a second variable patch comb, to be fed to the belt by a reciprocating feeder blade; with fibre webs the two combs are not required. The fibre blade presses the sheet of yarn between adjacent transverse blades of the belt which are so arranged that the loops are firmly gripped as the feeder blade retreats. The yarn is carried forward in this form to the P.V.C. spreading unit, where a layer of P.V.C. of controlled thickness is applied.



Aerosol-Turbo, Type W561 for laboratory, etc. use

P. M. Walker and Co. (Halifax) Ltd.—Stand No. 1420. Specially designed to meet the varying requirements of large industrial or commercial premises and capable of conditioning a volume of up to 100,000 cu. ft., the W 573 "Aerosol Turbo" air conditioner provides means for air washing or humidification, heating and air recirculation. Simply installed. No duct-work necessary. The 552 G and D563 ceiling model humidifiers on view are fully automatic and effect complete atomisation of water and evaporate this into the surrounding air. Filtered air intake provides high relative humidity in rooms of up to 25,000 cu. ft. The W 561 junior ceiling or wall model humidifier, designed to give controlled humidity within fine limits, is ideal for the small laboratory or conditioning chamber of up to 4,000 cu. ft.

Manufactured in a range of sizes to handle from 2,000 to 27,000 c.f.m., the "Upblast" powered roof units have been designed for highly efficient service in the rapid removal of air contaminated with smoke, fumes, dust and heat. Automatic shutters allow vitiated air to be driven vertically upwards, these closing down immediately the fan motor is stopped making a waterproof and air-tight seal. The "Westair" Continental model climatiser is a unit from a range developed to provide "packaged" air conditioners—units that are self-contained and will cool or warm, dehumidify, extract stale air and introduce fresh air, filtered free from dirt, dust and impurities. The "Continental" model will deal with rooms of up to 2,000 cu. ft. Axial flow fans in a range of sizes handling air volumes of from 500 to 50,000 c.f.m. and centrifugal fans are also on view.

Allen West and Co. Ltd., Brighton—Stand No. 1009. A wide selection from their range of standard motor starters for textile applications is on view, including plug-in designs which permit replacement of the interior in a matter of seconds, without disturbing wiring. Surface and flush-mounting arrangements are featured. Several representative examples of custom-built equipment illustrate the way in which close collaboration with machine makers achieves control gear conforming with the machine in appearance, whether the equipment be surface mounted, flush-mounted in a cavity, or separately floor-mounted. A very interesting feature is an energised exhibit demonstrating the starting and speed control in synchronism, of several motors on a card drive.

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T. Whittle and Sons Ltd., Warrington—Stand No. 1010. The company's well-known link mats are on view together with the easily fitted, detachable link, rubber and leather V-belting. Made in P.V.C. the mats are both oil and heat resistant, whilst the links are joined by spring steel, rust-proof wires. The inability of the wires to bend ensures that the mat remains perfectly flat and free from warping. V-belting on view includes the laminated rubber; stud, detachable head or standard types, leather link and solid section V-belting and flat belting. Other exhibits include the company's range of V-grooved pulleys, and various varieties of conveyor belting.

* * *

Carter Gears Ltd., Bradford 3—Stand No. 2305. A wide range of working and static hydraulic infinitely variable speed gears are featured demonstrating standard handwheel, remote electrical, lever and hydraulic relay controls. Representative of the fractional up to 35 h.p. range of Carter gears, the units shown will include different arrangements of hydraulic variable speed gears, electric motors and reduction gears, showing how complete variable speed drives can be suitably designed for the wide range of textile processes requiring stepless speed variation. Photographs of and information on some of the hydraulic variable speed drives is available on the stand and technicians present will discuss and advise on variable speed drive selection for specific applications.

* * *

Max Spaleck G.m.b.H., Bocholt, Germany—Stand No. 1309. A fully automatic machine for cleaning and grinding reeds, type "Matador," is one of the main interests on this stand. It is fully automatic and single sided and gives maximum cleaning and grinding capacity for either pitch bound or all-metal reeds, which may be treated singly or attached to harness.

The drop wire cleaning machine on view is designed to deal with 2,000 to 5,000 wires at a time according to size. Essentially simple in design, the machine is easy to operate and should prove a valuable asset to any weaving shed. Both the foregoing appliances are delivered complete with motor. Two types of shuttle adjusting machine are exhibited: C.I. for shuttles up to 50 mm. wide and 450 mm. long. C2 for shuttles up to 65 mm. wide and 600 mm. long. (The U.K. agents are Macart Textiles (Bradford) Ltd., Swan Arcade, Bradford 1.)

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Walter Schultheis and Co., 21-23 Kohlhauser Strasse, Fulda, West Germany—Stand No. 2001. Specialists in beam hoists, trucks, fabric inspection equipment. The mobile hoist shown by this firm occupies very little space and is hand or hydraulically operated by one man. The arms are adjustable and support the beam at its ends. Also displayed is a model of the company's recent fabric inspection machine. U.K. agents are Coates Smith Ltd., 33b Curzon Street, Derby.

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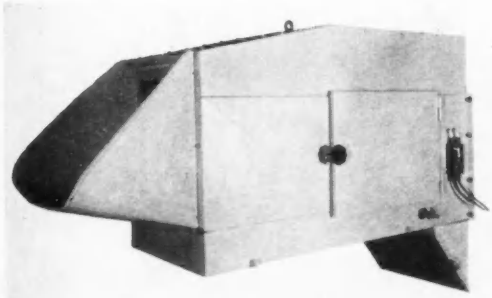
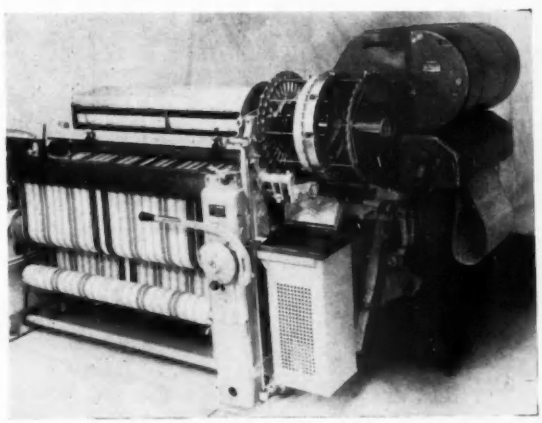
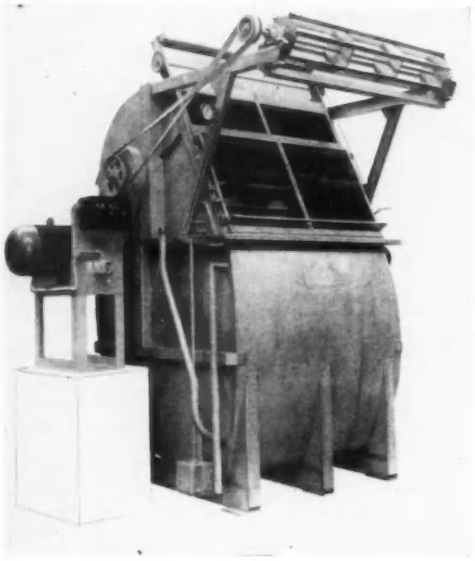
Staubli Bros. and Co., Zurich—Stand No. 1509. The main exhibits on this stand comprise the HLERDOg double-lift, positive open shed cam dobby with two paper cylinders for light and medium-weight fabrics on high or low built looms, and the LEZ single cylinder, double-lift cam dobby with perforated paper pattern, featuring positive drive of the cylinder, built-in cam motion for the knives and a pick-finding device. Advantages claimed for the HLERDOg include (*a*) positive movement of heald frames without springs or spring undermotions, (*b*) heald frames stationary when shed is open during passage of shuttle, (*c*) use of normal paper patterns where only the lifting of the healds has to be cut, (*c*) machine can run at any speed of looms on wide fabrics. The firm's card cutting and copying machine is on view, also the WEM shuttle truing machine. (Sole agents for the U.K. are A. E. Aspinall Ltd., Manchester.)



(left)
Aerosol-Turbo, Type W573 for large industrial premises



(right)
The HLERDOg double-lift cam dobby fitted to a Saurer automatic



(left)
The "Prefect" enclosed piece dyeing machine has three speed and reverse drive

(right)
The new "Gridflow" has a variable diameter paddle for stronger agitation or smaller batches

Freeman, Taylor Machines Ltd., Syston—Stand No. 1215. Specialists in the fabrication of stainless steel, the firm exhibit the "Prefect" enclosed piece dyer of curvilinear construction which has an all-welded winch with heart section staves. Three speed and reverse drive, the fully glazed inclined hood door provides maximum visibility. An improved "Centurion" hank dyer with bottom hank pole arrangement and exceptionally strong circulation for successful application of fast colours is also to be seen. Indirect heating and other characteristics are said to raise the possible upper temperature limit to 212°F. plus. The top dyer on view is a lightly pressurised machine designed to produce ideal liquor conditions through slubbing in ball form whilst maintaining maximum efficiency over the full range of temperatures up to 215°F. A new version of the modified "Gridflow" machine incorporates a patented variable diameter paddle which provides a stronger agitation or deals effectively with smaller batches at lower liquor levels.

An improved "Loostok" dyeing machine is lightly pressurised to maintain efficient flow characteristics through the full temperature range. An infinitely variable speed drive unit is fitted, also automatic locking and release for quick operation. The "Autorev" cycle controller is a robust instrument designed to allow the dyer to vary his process periods instantly and reliably. It can be used as a remote control station to operate one or a host of machines but still giving individual and safe control at the machine. Standard instrument allows for separate settings up to 15 mins. in each direction, with a pre-set delay of 15-90 secs. to prevent surge currents. A "Multipan" dyer on view is available with pans of varying capacities for dyeing small garments, sample lengths of fabric, etc., and can be heated by electricity, gas, steam or hot water.

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James H. Heal and Co. Ltd., Halifax—Stand No. 1120. The instruments include all basic instruments such as wrap reels, twist testers, balances, and hank strength testers, in addition to wear testers, comb sorters, volume testers, pilling testers, constant winding testers, and numerous other devices. Each instrument has been designed for a specific purpose and provides a powerful aid for better and faster production. There is a special show of testing instruments manufactured in Hungary. One interesting item is an automatic cotton grader known as the "Texoriscope," used for the examination of cotton staple; the basic principle is the application of polarized light. Other instruments are: electronic moisture content meter for mains or battery operation, semi-automatic wool fibre length tester, automatic fibre length tester for cotton, fatigue tester for yarns and sewing cotton, torque tester, laboratory dyeing equipment and infra-red ultrameters.

Wright Hargreaves Engineering Co. Ltd., Blackburn—Stand No. 1407. The new "Stripomatic" system on show has no traversing nozzles. There is one fixed tube to the doffer and one for the cylinder. The tubes are located behind the nameplate on the doffer top and below the "licker in" underneath the cylinder. These are connected through a special device attached outside the card frame but within the overall space taken up by the card, to the vacuum piping laid either in the floor of the room or overhead. The "Stripomatic" device is set in motion by pushing a button. Thereafter stripping of cylinder and doffer takes place automatically and the operator is free to attend to other cards in line, as the device stops itself when the card is completely stripped. All strippings are pneumatically conveyed through the piping system to a central waste reception where the self bagging waste receivers and turbine exhausters are located. Similarly card underfly, flat strips, drawframe, speedframe, ringframe waste and blowroom droppings may all be vacuum cleaned and removed to the same waste centre. This "Autobag" waste receiver is another new piece of equipment which enables all types of cotton waste to be pneumatically filled into a bag of special size inserted into the waste receiver. This is especially useful to vertical organizations using their own waste as it is bagged in separate qualities uncompressed.

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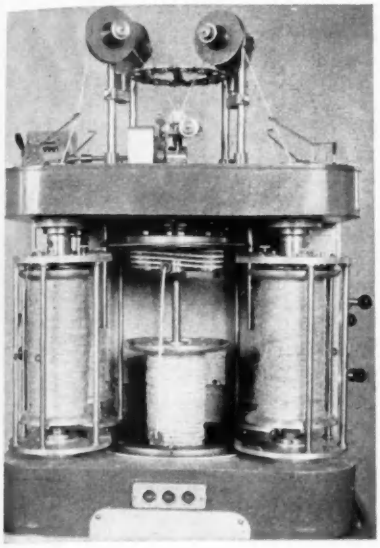
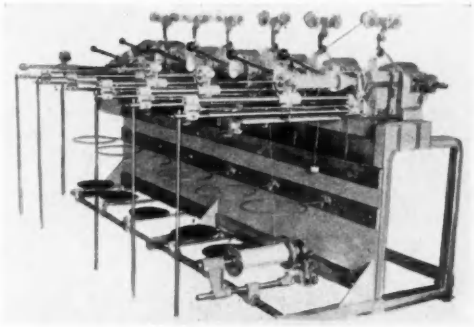
Hoffmann Tweedales Ltd., Chelmsford—Stand No. 2402. A comprehensive range of roller bearing spindle inserts may be examined on this stand. The company also specialise in anti-friction bearing loose and fixed boss top weighting rollers, also ball bearing tape tension pulleys in various sizes, all of double row rigid construction. Roller loose end bearings for use with solid top rollers form another branch of production and these, too, are available in a number of different sizes.

(right)
A small selection from the range of anti-friction bearings made by Hoffmann Tweedales Ltd., for the textile industry



(left)
The Memmingen high speed "Supertrawl" cabling machine



(right)
A Memmingen 6-spindle high capacity cop winding machine

Maschinenfabrik Memmingen K.G., Germany—Stand No. 2320. The recently developed high speed "Supertrawl" cabling machine is shown for the first time in this country. This 1- or 2-spindle cabler is suitable for 2-, 3- or 4-ply sisal, manila, flax, hemp, jute, cotton, rayon and synthetic cords, twines and strands from 0·8 to 8 mm. dia., operating at speeds up to 4,000 r.p.m. Every size of laying bobbin from 6 ins. × 3 ins. to 13 ins. × 10 ins., and creel bobbin from 6 ins. × 3 ins. to 12 ins. × 8 in. can be used. Gear-driven throughout, all bobbins are positioned vertically at the same height. A feature is the patent, gear-driven ring which enables very high speeds to be obtained even when employing large-size bobbins. The standard machine is provided with 200 progressive twist selections, from 0·6 to 12·5 turns/inch, or 7·20 to 152 turns/foot. The machine is fitted with infinitely variable speed drive, automatic stop-motions and signal lamp, revolving die, cropping attachment, predetermining counter and plastic cover in front of the flyers.

Another interesting machine on view is the high capacity cop and tubular cop winding machine for sisal, coir, hemp, jute, flax and woollen yarns designed to produce perfect cops up to 25·6 ins. long and from 1·6 to 3·2 ins. dia., at a maximum spindle speed of 2,000 r.p.m. or delivery of 310 yds./min. The maximum size of supply package, when unwinding over-end from cross-wound rolls, is 10 × 10 ins. but the yarn can also be unrolled from bobbins, or unwound from hanks, with a special device. Sole agent in the U.K. and Ireland: R. S. Maynard, Langham Court, Fielden Park, Manchester 20.

* * *

F. Smith and Co. (Whitworth) Ltd., Rochdale—Stand No. 1103. The controlled tension fully automatic driving unit for dye jiggers on view is suitable for fitting to any make of jigger and 1,500 of these units are claimed to be in operation in various countries. The special all electric "Autojig," fully automatic, suitable for either a.c. or d.c. supply has several notable features including infinitely variable speed between predetermined limits, all electric braking, hood and fittings in contact with liquor, vapours and fabric are all stainless steel. The "Autolink" machine is capable of accommodating the maximum amount of cloth in a minimum of space, suitable for continuous processes where cloth in a relaxed looped state requires a lengthy retention period within a chamber. For example: A machine 16 ft. long holds 2,268 yds. of cloth.

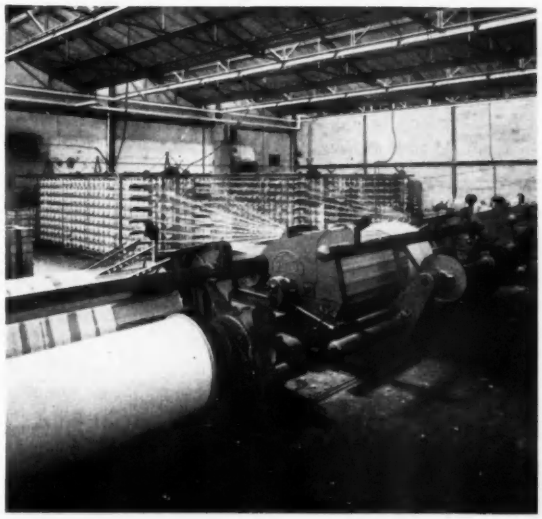
Two compartments of "Smith" open width soaping and washing machine are on view. For demonstration purposes the first compartment is fitted with the firm's method of running the cloth in double formation through the machine. To show alternative arrangements the second compartment is fitted with the patent "Turbo" washer, a most striking advance in the technique of open width washing. The top rollers of the first compartment are driven by means of patent elasto belt drives providing complete automatic tension control, between roller and roller. The company's patent elasto belt relaxed drives are for application to any machine where tension must be reduced to absolute minimum values, e.g. steamers, agers, bakers, cylinder type dryers, etc. Installing an elasto belt drive to each roller or cylinder means a reduction in speed automatically takes place between rollers to compensate for shrinkage.

* * *

Jean Gusken, G.m.b.H., Germany—Stand No. 2204. The universal high speed horizontal section warper type W.S.U. exhibited is for cotton, worsted or synthetic yarns. Shown warping viscose filament yarn from creel at high speeds. With automatic constant yarn speed 0-600 yds./min. and constant beaming-off 0-100 yds./min., it has an automatic traversing device and is for beams up to 32 ins. flanges. (Represented by Crowther Ltd., Thurmaston, Leicester).

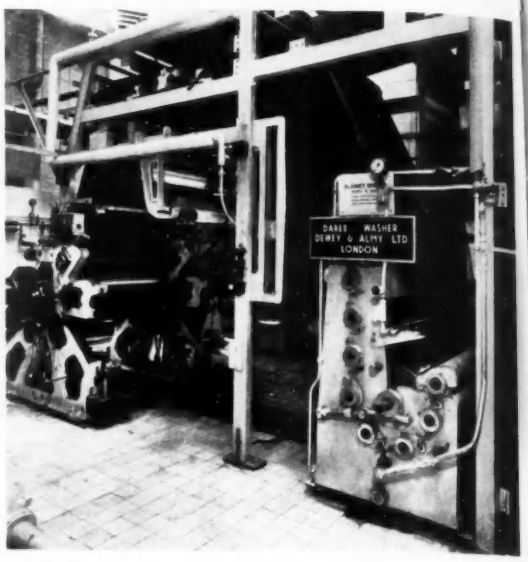
* * *

United Insulator Division of the Telegraph Condenser Co. Ltd.—Stand No. 2308. A wide range of the "Unilator" gem-hard ceramic guides can be examined. These include the normal non-conductive quality and the popular non-conductive anti-static types in a variety of finishes. Two new products on show for the first time are "Unilatum" and "Unikote." "Unilatum" is a new super-hard ceramic, brown in colour, which has been developed primarily for its flexibility during manufacture and its very great resistance to wear. "Pigtails," curls, hooks and other guides are on show in "Unilatum." "Unikote", "Unilator" or "Unilatum" ceramic coating on metal. "Unikote" ceramic coatings are said to have all the advantageous properties of the solid ceramics and can be applied in any thickness from 0·005 in. to 1·000 in. or more on to mild steel, stainless steel, brass, iron, aluminium, and many other materials. Numerous guide designs and machine parts can now be made in metal and coated with "Unikote." "Unikote" is claimed to be far superior to hard chrome, glass, or enamel, yet is mainly less expensive.



(right)
View from the beaming end of a recent installation of Gusken high-speed warping machines (Crowther Ltd., Thurmaston, Leicester)

(left)
Smith's yarn speed indicator is calibrated 100-800 ft./min.



(right)
A view of the Darex washer following a roller printing machine

Smiths Industrial Instrument Division, London, N.W.2—Stand No. 2302. A pre-determined counter on view is a five-figure counter capable of indicating any preset number between 1-99,999. It has been introduced for applications requiring a precise and repetitive length or number of units as, for example, lengths of cloth, tape, etc. The instrument is based on the normal counter mechanism and incorporates a micro-switch which is used to produce any desired electro-mechanical action. The design allows the number drums to be handset to a pre-determined figure and when mechanically engaged the counter will run back to zero to operate a micro-switch. The yarn speed indicator displayed has been introduced to ensure that by accurately measuring wool, cotton or synthetic fibres on circular knitting machines, both tension and quality can be adjusted to a consistent level. The indicator works on the magnetic principle and is accurate to $\pm$ 1% full scale reading. The dial has a platform scale which obviates parallax errors and is calibrated 100-800 f.p.m. A representative range of instruments will be shown including loom pick and revolution counters, gear boxes, electrical and mechanical indicators, engine service counters, etc.

Croon and Lucke, Maschinenfabric Mengen, Germany—Stand No. 1216. Manufacturers of balling machines and machines for the braiding trade, this firm exhibit the 1 W 400 K change reel machine for reeling synthetics, crimped yarns and finest cotton yarns into hanks, with 30 or 40 reeling points. The 1 S 2/150 double reeling machine is a universal machine for coarse and medium counts, with 2×12 or 2×15 reeling points. Additional machines on view include the 1 K 100 balling machine for hand-knitting yarns, the 1 T 1 barrel-filling and ribbon control machine, and the 1 B 4 ribbon winding machine for measuring and winding ribbon of various widths on to carton, rolls or bobbins. The W 400 K change reel machine offers the great advantage of being able to carry out two working processes simultaneously, i.e., forming of hanks on one swift and removing finished hanks on the other. After finishing these processes and after taking off the finished hanks over the free end of the swift, both swifts are turned once and work can begin once more after only the shortest interruption. (Muschamp Textile Machinery Ltd., Bardsley, Oldham, are the U.K. agents).

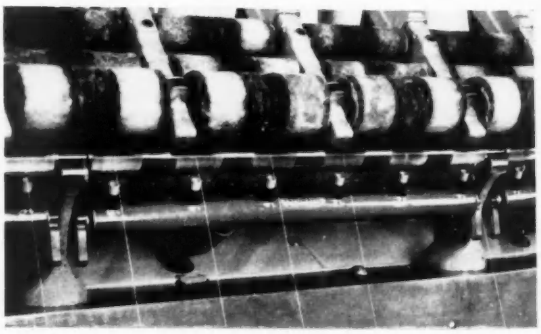
Dewey and Almy Ltd., London—Stand No. 2319. The original Darex process has now been brought to the point where it is one of the highest esteemed methods in use. The process embraces methods which are stated to relieve management of the necessity for using high-cost backgreys, and printers of the numerous details over and above the actual printing operation. The combination of the Darex blanket and the blanket washer permit printing of a wide range of colours, patterns and fabrics with, it is claimed, lower cost and high quality. (Represented by F. B. Dorer, 24 Huntley Road, Manchester, 8).

Carrier Engineering Co. Ltd., Wrigley Street, Oldham—Stand No. 1006. The "Pneumafil" system of pneumatic broken end collection is available as a built-in unit on new spinning frames both for home and export markets. The system can be seen in operation on several other stands in the exhibition, including cotton, rayon and woollen and worsted machines. The system can be installed as a group system with a central fan set serving any selected number of ringframes.

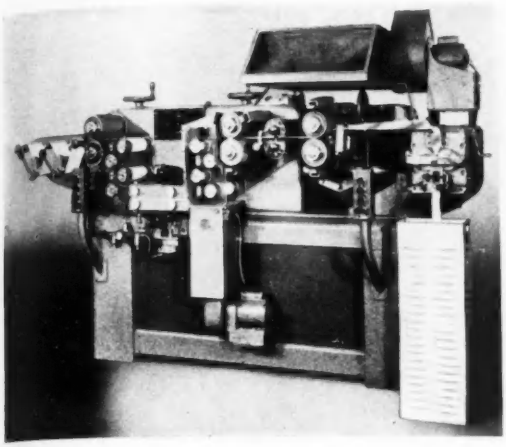
The company also manufacture the "Pneumastop" system for broken end collection on roving and speedframes. The broken rovings pass through an electronic device in the main duct and stop the frame and actuate a warning light. "Pneumastop" can be ordered as a built-in unit for new speedframes. It can also be supplied to existing roving and speedframes, including the older belt-driven type. Carrier Engineering Co. is now fully equipped to deal with fan engineering problems associated with the textile industry.

Gorickewerke Nippel and Co., Bielefeld, Germany — Stand No. 1028, Exhibited for the first time in the U.K. is their latest Model NCR 68 fully automatic cop changing loom, running at a speed of 128 p.p.m. and weaving engine waste cloth using large cops 2 ins. dia. 14 ins. long. They also introduce their Model NCR 67 which is a heavier version for weaving heavy fabrics, raffia fibre, hemp, asbestos and heavy cotton. Speeds of up to 136 p.p.m. can be obtained. One feature of this loom is the use of a special wedge type shuttle and the replacement cops are inserted at an angle of approximately 30°. (Muschamp Textile Machinery Ltd., Bardsley, Oldham, are the U.K. agents).

Plutte-Koecke and Co.—Stand No. 1207. A new high-speed direct beaming machine on view provides constant yarn speed throughout the operation. Other features include pre-determined measuring counter, incorporating electric stop motion, controlled warp density. Special fitments are also available to produce soft beams suitable for beam dyeing. Yarn speed variable from 150-600 metres per minute. (Represented by Textile Accessories, Sunderland Street, Macclesfield).

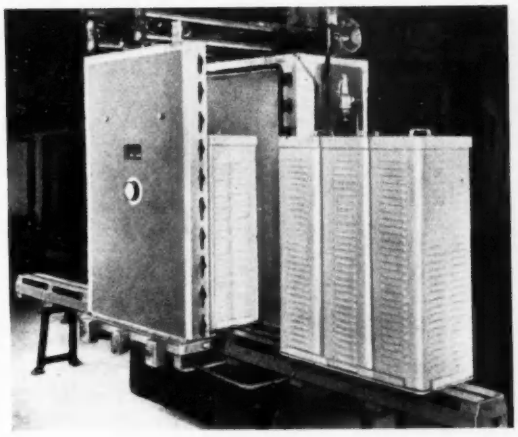


(right)
View showing the "Pneumaroll" in position for collection of broken ends on ringframes



(left)
The Turbo Stapler converts continuous filament tow into top

(right)
The Turbo automatic fibre setting machine



Turbo Machine Co., Lansdale, Pa., U.S.A.—Stand No. 1011. Developments in the use of acrylic fibres lend particular interest to Turbo Stapler, a machine already widely used in the production of high bulk yarns for knitwear and other purposes. It converts continuous filament tow into a top of high quality suitable for further processing on conventional spinning equipment. Conversion is entirely automatic, the tow being first delivered through tensioning and spreading bars to a heating zone where it is heated and stretched to a pre-determined degree. On leaving, the stretched tow is rapidly cooled and delivered to the breaking zone, where it is stretched to a point at which the individual filaments fracture, within controlled but varying staple lengths, and thus a top of comparatively long staple fibres is produced. This top is then crimped and delivered into fibre cans.

If the yarn which is to be produced from the Turbo top is for weaving, then the top or sliver is taken on to normal spinning processes but where it is required to obtain all the advantages of the high bulk process for knitwear, then a percentage of the sliver is set in an automatic fibre setting machine. After setting, this sliver is blended with a proportion of the unrelaxed fibre as it comes from the Turbo Stapler and is then spun. It will be appreciated that when a yarn produced in this way is dyed, the unrelaxed proportion of fibre in it will have a higher degree of shrinkage than the relaxed fibre and this desparity between the shrinkage rates of the two constituents gives a high degree of bulk to the dyed yarn and consequently the soft full handle required in the final garment.

Sharing Stand 1011 are Lendt and Co. Inc., New York, the export agents for Turbo and many other world famous American textile machine makers, including leading firms in spinning, weaving, dyeing and finishing equipment and also in the field of non-woven fabrics. Associates and representatives of Lendt and Co. for the sale of this American equipment in the U.K. and Eire are Barke Machinery, 100 Portland Street, Ashton-under-Lyne.

* * *

Tattersall and Holdsworth's Globe Works and Stores, Enschede, Holland—Stand No. 1514, display one complete unit of a cylinder drying machine with the patented "Relax" drive. To eliminate stretch or shrinkage, each cylinder is driven individually, making as many revolutions as corresponds with the cloth speed at that particular stage. This means tensionless drying, yet any desirable tension can be pre-set. The machine runs noiselessly. Gear-wheels have been dispensed with and the driving mechanism and the pipings encased and easily accessible. Stains on the fabric are avoided.

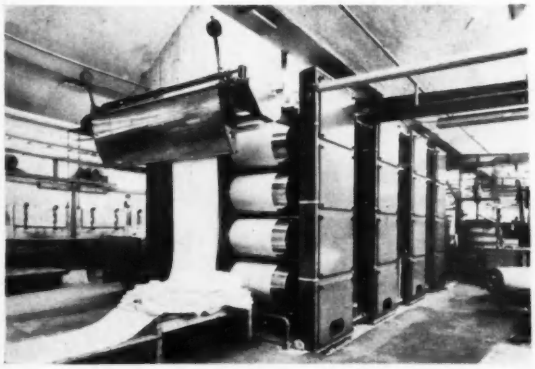
The old type of glands have been replaced by dollheads. Syphon pipes, instead of buckets are used so that condensate is being removed from the cylinders when they do not rotate.

Another feature on the stand is a laboratory dye jig for small lengths of cloth. The machine is quite versatile and the principle is the same as with an ordinary jig, i.e. the cloth speed is constant and the fabric is dyed tensionless by the use of a differential drive and batch rollers with free wheel brakes. Heating, however, can be effected either by electricity or gas, in both cases thermostatically controlled.

* * *

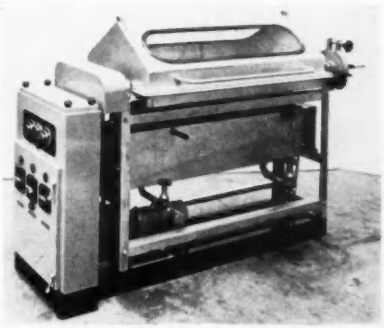
H. Stanier and Co. Ltd., Treforest Industrial Estate, Pontypridd—Stand No. 2001. Working sections of H.S. jack and magazine creels are shown equipped with yarn tension control and stop motion unit. The precision built jack creel has tubular steel framework and has been designed for over-end warping of nylon, "Terylene", and other man-made and natural fibres. The ballooning length is adjustable, high quality ceramics are used throughout and a wide range of standard sizes with various spindle pitches is available.

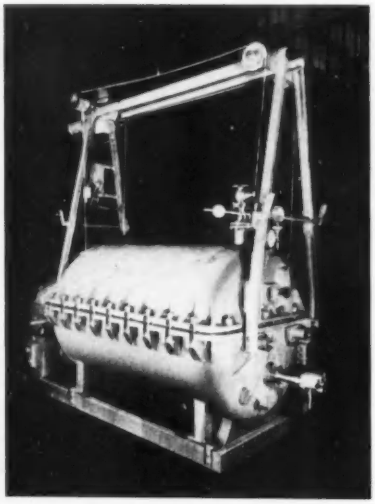
The magazine creel is of similar robust construction. On view for the first time, its novel design accommodates the latest nylon and other packages, economises in space, allows easy access to the yarn path, which may be inwards or outwards and incorporates the Stanier patented easy loading device. Creel accessories shown include a composite adaptor, designed to fit over spindles and to hold firmly all yarn packages at present in use, including the latest nylon and "Terylene" spinning bobbins. The H.S. combined yarn tension and stop motion unit is also displayed in rail form and individually mounted on a small pressure die casting for fitting to all makes and types of creels. The U.K. agents are Coates Smith Ltd., 33b Curzon Street, Derby.



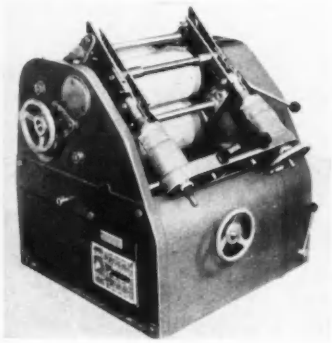
(left)
Complete unit of cylinder drying machine with "Relax" drive

(right)
Tattersall and Holdsworth's jig for sample length dyeing

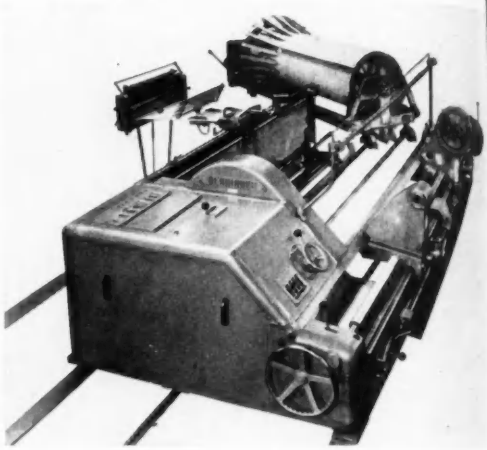




Benninger pressurised automatic dye jig for "Terylene", nylon, etc. On the right is the sampling device which enables samples of fabric to be removed from the batch without reducing pressure



(above)
Laboratory size model of the "Fibe" pad dyeing machine



(right)
Benninger section warping machine with removable drum

Benninger Engineering Co. Ltd., Uzwil, Switzerland—Stands No. 1110 and 1211. Visitors will see a complete sectional warping plant consisting of a warper and a creel with electric stop motion. The machine is being built in four different types each of which can be equipped with various special devices. The machine at the exhibition has the following characteristics: entirely closed drum with a circumference of 8 ft. 2¼ ins., mounted on a carriage for lateral displacement. This permits the full drum to be placed directly in front of the slasher if required. Warps which are not to be sized can be beamed-off by means of the beaming device which is an integral part of the warping machine. The following special devices are built into the warper: electric starter for starting the machine from the leasing headstock or from the creel by means of push-buttons; drum reverse motion for taking back broken ends; variable reed headstock feed; automatic guide reed control for constant distance between guide reed and drum, cone height determinator allowing rapid determination of the cone height; automatic speed regulation for constant tension in warping and beaming; adjusted yardage counter for continuous correction of the excess length wound on the drum; piece length stop motion; cross winding for beaming; automatic tension regulator for beaming; beam doffing arrangement. The creel is equipped with GZA type tensioning devices specially designed for warping continuous filament yarns, also spun yarns of all kinds. All parts touching the threads are made of synthetic material to suppress static charges.

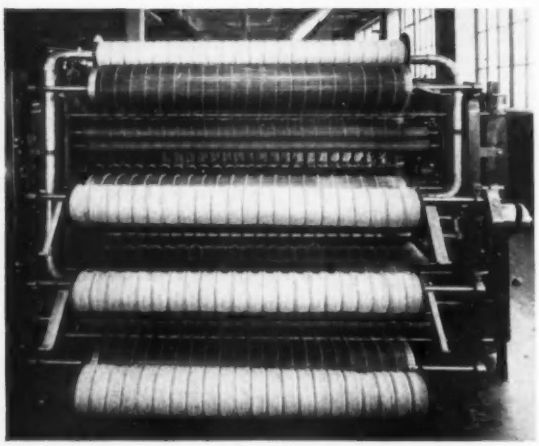
The company's high temperature and pressure dye jig (LFMkd) will attract special interest. Provided with a sampling device, it is claimed to give shorter dyeing time, reduced costs and excellent colour fastness to light and rubbing even with dark shades. The kier, tested for a pressure of 4 at., is divided horizontally into two parts, the upper of which can be hoisted by means of a special motor-driven winch. Dyestuff is fed to the interior through a circulation pump and distributing pipes. This arrangement makes the supply of diluted dyestuff possible whilst the machine is under pressure. A completely new design is the four-bowl laboratory padding mangle (CFA). This construction is mainly based on the principles of the well-known "Fibe" padder.

* * *

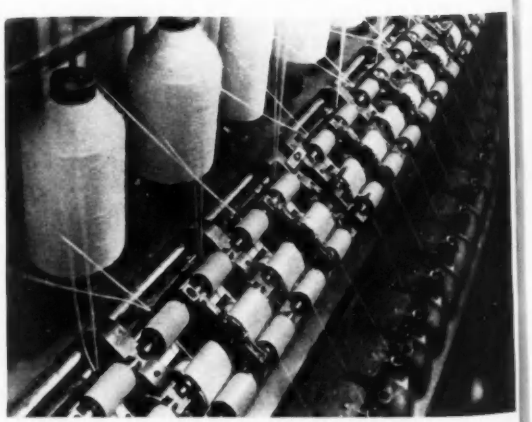
Revol Ltd., Newcastle-on-Tyne—Stand No. 1610. Two new graphite lubricants—"Reductol" and "Drylube" are exhibited. "Reductol" is a graphited lubricant of super film strength for enclosed gear transmission units, and contains a special anti- and non-corrosion additive which ensures a film of high shear strength even under extreme pressure, and silicones which reduce foaming. "Drylube" is a quick drying solvent graphited lubricant for gears, cams, slides, chains etc., where normal lubrication is not possible. Two grades are available, "A" for spinning frame poker bars, doffer comb faces etc.; "B" is for exposed gears on carding and blowing room machines, mules and looms, etc., where perfect cleanliness is absolutely essential.

* * *

Dayton Rubber Co. Ltd., Dayton Works, Dundee—Stand No. 1319. Years of research work combined with exhaustive selective methods have resulted in an impressive array of rubberised textile machinery products. Many of these well-known products are on show: roller coverings, cots, aprons, condenser tape are featured together with the new "Dayco" slasher rollers. It is claimed that these rollers are unaffected by oil or chemicals, will not groove or leave roll marks, and ensure clean uniform sizing. Specially featured are the highly abrasive resistant finishing rollers with enclosed ends. The company state that they are of uniform hardness, highly resistant to oils or chemicals and are specially designed to fit the requirements of a given machine.



(left)
Mill picture showing Dayco rubbers on a 4-height condenser



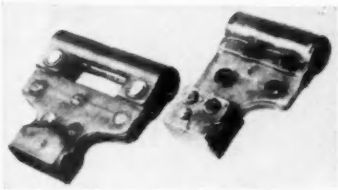
(right)
Dayco drafting aprons on a ring-frame high drafting system

A few of the wide variety of "Sintox" guides to be seen in Crabtree's display

Crabtree Textile Accessories Ltd., Colne—Stand No. 1007. Manufacturers of high quality textile accessories themselves for 90 years, the company also act as agents for many other manufacturers including Plasticast Developments Ltd., Evans Thompson and Co. Ltd., and Lodge Plugs Ltd. An exhibit of particular interest is the universal yarn controller, a device capable of varying tension from the minute degree required for 15 den. single filament yarn to that required for heavier high twist yarns. This is done by taking the yarn over highly polished perspex surfaces and through a "Sintox eyelet". Also on show is the telepathic compensation and indicator type C and P for seamless hosiery, and the famous "Sintox," standard range of alumina ceramic thread guides noted for their smoothness, strength, chemical resistance, and, in particular, their resistance to abrasion. Many other accessories are on view including hard chrome plated thread guides, gate and disc tensions, creping flyers with the new nylon blocks and plastic bobbins, quilts, tubes, etc.

* * *

Sam Vollenweider Ltd., Switzerland—Stand No. 1605. A new selvedge trimming machine ("Wac") on view is a fully automatic machine suitable for removing all hanging threads at the selvedge as well as all loop threads at the selvedge of weft-check cloths. The cutting head, guided automatically by a sensitive feeler device, follows the selvedge continually. Another device, controlled by a photo-electric eye, allows the seams to pass freely through the trimming head. The loop-opener consists of a dual cutting gripper-disc. The loop threads are, therefore, no longer opened by cutters or scissors. The actual trimming device cuts all hanging threads very close to the selvedge. This is achieved by the vertical position of the spiral-cutter which is at right-angles to the selvedge. A powerful exhaust fan sucks off cut threads into a box built into the machine. The company specialise in croppings and



Underpick pickers in buffalo hide, (left) Reversible (right) Dobcross. Geo. Angus Ltd.

shearing machines; cloth shearing and tricot shearing machines; cloth brushing machines, and many others. Livesey and Aspinall Ltd. are the U.K. Agents.

* * *

A. E. Callaghan and Son Ltd., Midhurst, Sussex—Stand No. 1018. The central feature of this stand is the new three unit assembly, Fibre amalgamating machine. A versatile apparatus claimed to deal adequately and effectively with a wide range of fibres differing widely in physical characteristics, producing webs which are randomised uniformly throughout their distribution. Years of research and experiment have resulted in two important innovations: the necessity for the first—a continuous semi-lapping device—became apparent when the weight motion, with its consequent high-speed drops was first utilized. The second innovation—the impregnator—incorporates the bath impregnation system, introduced by Rubber Technical Developments Ltd., and claimed to give satisfactory results.

* * *

Officine Galileo, Firenze, Italy—Stand No. 2602. An interesting display is sure to provide much to hold the attention of visitors to this stand. Many different types of loom are manufactured by the company: four different T2S types for rayon, silk and true synthetic yarns, four T2L types for woollen and worsted yarns and the four varieties of the T3C model for cotton, flax and hemp yarns. Nearly all the company's range of looms have frames of welded steel construction which, it is stated, allows the most suitable high speed without danger to any mechanical part of the loom. All models can be supplied with heald lifting arrangements from inner or outside tappets or, if required, with single or double cylinder dobby of either open or closed shed type.

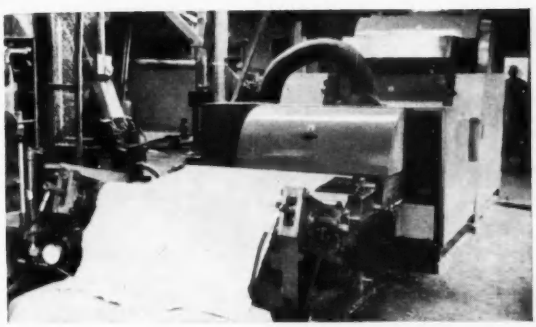
* * *

Card Clothing and Belting Ltd., Halifax—Stand No. 1414. On this stand a card setting machine made within the group, is in action setting a cotton doffer fillet in a new, self-sealing flexible C.W.C. foundation made by Horsfall and Bickham Ltd., one of the member firms. Specialities on view include fillets set in oil resisting "blue" synthetic faced foundation for the woollen and worsted trades, also patented cushion felt foundations—standard and oil resisting—for the cotton waste, woollen and asbestos trades. Different types of teeth and setting of the wire manufactured by Critchley, Sharp and Tetlow Ltd., are on view in a remarkable range. On the transmission belting side, few firms can offer as extensive a service to the textile industry. The more traditional flat belts made from leather—tanned and curried by associate firms—or rubber, are available in various constructions. Claimed to be the first manufacturer of V-ropes in Great Britain and also the first to manufacture wholly in this country, nylon centred flat belts, Fleming, Birkby and Goodall Ltd. can supply these with standard pulleys or with the new "Magicgrip" specially bushed pulleys.

* * *

George Angus and Co. Ltd., Newcastle-upon-Tyne 1—Stand No. 1313. A representative selection of textile accessories and fire equipment is shown on this stand, which is divided into two distinct parts, each forming a self-contained display. One part is devoted to products of the George Angus general sales division and the other to those of the Oil Seal Division, which are marketed by Clegg and Mellor Ltd. Belting displayed includes "Superangus," "Maxgrip," "Gatex" and "Uptwister." All offer remarkable efficiency in power transmission. Rubber textile accessories include frog rubbers, rubber blocks and stick buffers for Northrop and Crompton and Knowles looms. The Angus range of fire fighting equipment on view includes Gacos C.O.^{2} and dry powder fire extinguishers of compact and efficient design, swinging hose-reels and fire hose, including the well-known "Fire Fighter" and "Flame Fighter" reinforced rubber-lined hose.

The range of Gaco textile accessories includes Gacots, high-draft aprons, woollen and worsted roller covers, underpick pickers, spindle buffers, take-up strip, dolly roller covers and temple roller covers. Developed in Angus laboratories, Gaco is a special synthetic material claimed to possess exceptional properties for use in textile manufacture. The range of leather textile accessories includes transmission belting, five types of picking bands, folded and blocked red chrome lug straps, hair check straps, Gatan swell and brake leathers, oak-tanned pickers, buffers, buffalo hide pickers, oak-tanned heald straps, combing leathers, gill box leathers, french combing leathers and condenser rubbers and tapes.



View of the new three-unit assembly fibre amalgamating machine with impregnator attached and impregnated asbestos web leaving machine for drying

the HATTERSLEY-PICKARD C.R. TYPE FLAT PLATE PRESS

for Cottons, Rayon, Poplins, Linings, etc.

HIGH QUALITY FINISH

•

FREEDOM FROM STRETCH

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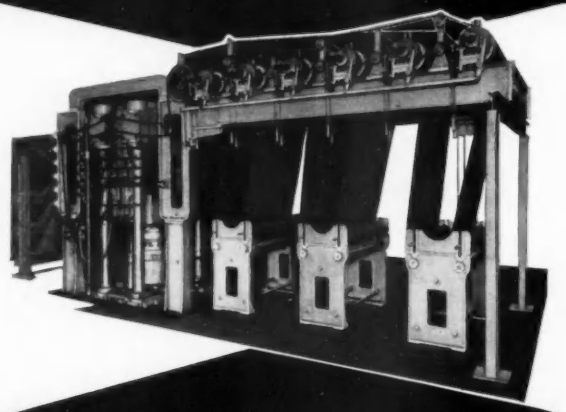
HIGH OUTPUT



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FABRICATED TO YOUR SPECIAL DESIGN

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Ulamin in the Factory Saves Time and Money

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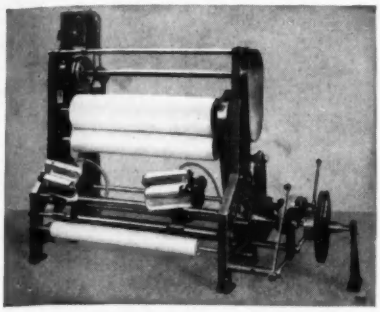
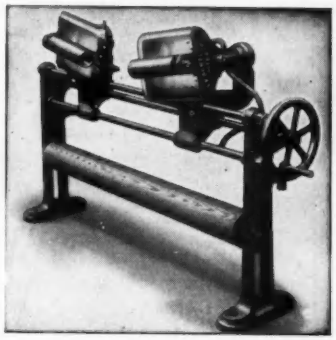


SELVEDGE PRINTING MACHINE

Fitted with a "Foxwell" Pneumatic Cloth Guider gives clean accurate impressions at high speed. Measuring Arrangement can be supplied.

'FOXWELL' PNEUMATIC CLOTH GUIDER



A simple, accurate and reliable machine for guiding all types of fabric on to any other machine. Removes curls and creases.
If required can be arranged to guide one selvedge only irrespective of variations in cloth width.

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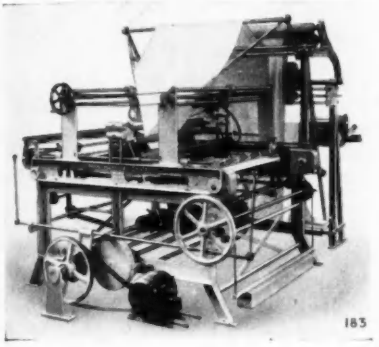

Is silent, efficient and accurate.
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incorporating
"ECCO" X
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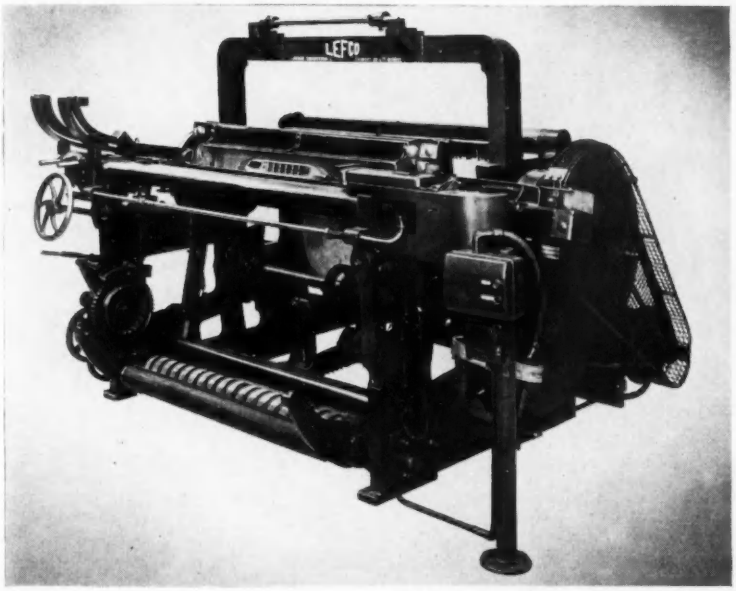

46½" r. s. Automatic Loom

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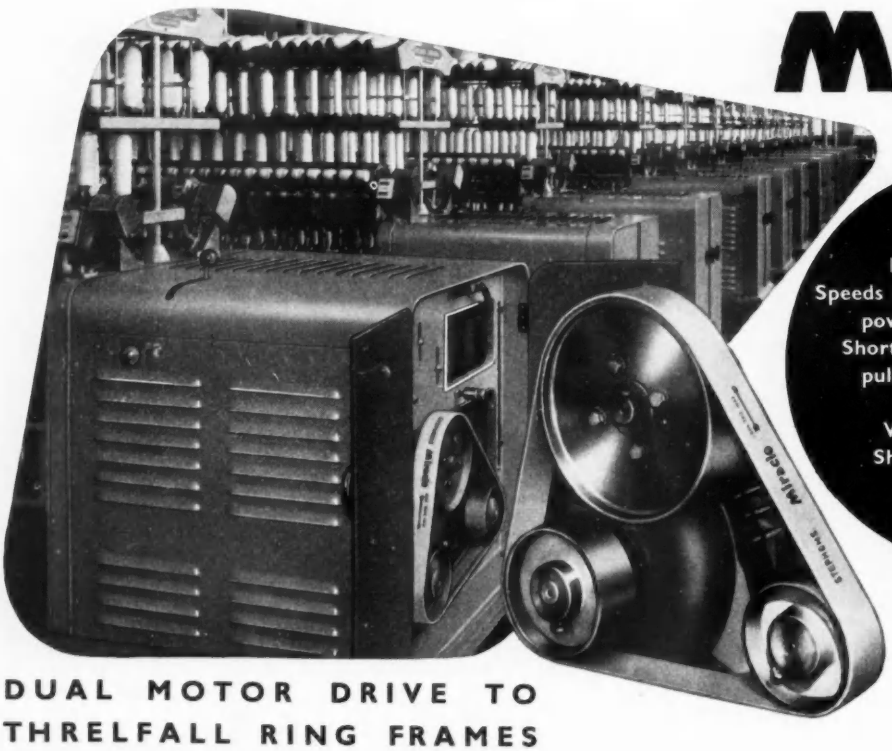

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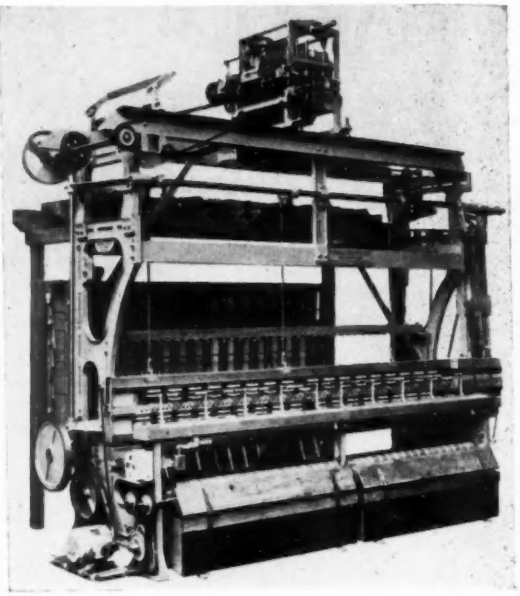

Illustration of improved 34 space 3-tier Mock Rise and Fall Batten Jacquard Loom fitted with Patent Batten Lift Motion Parallel Batten Motion

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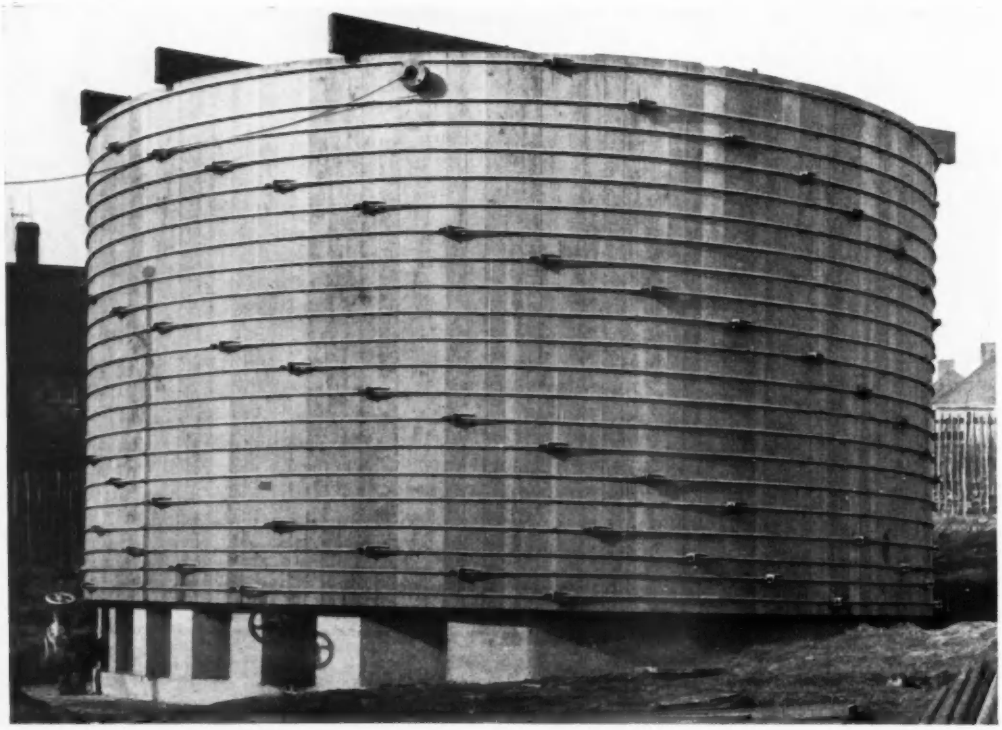

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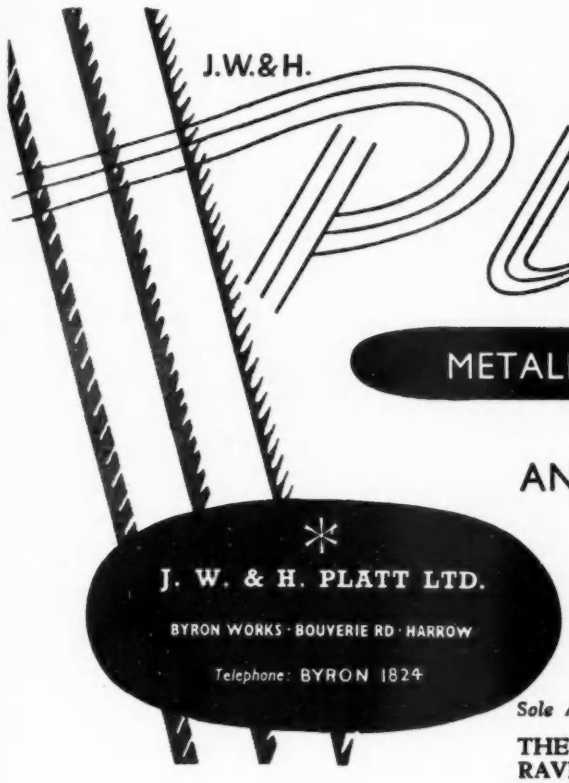

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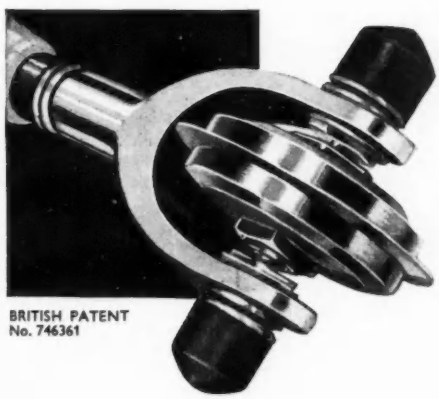

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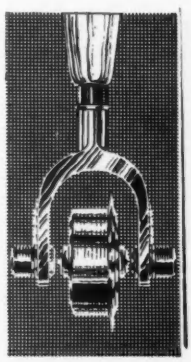

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***electric* cutting and sealing machines**

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you can adjust
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**Agents: Macart Textiles (Bradford) Ltd.,
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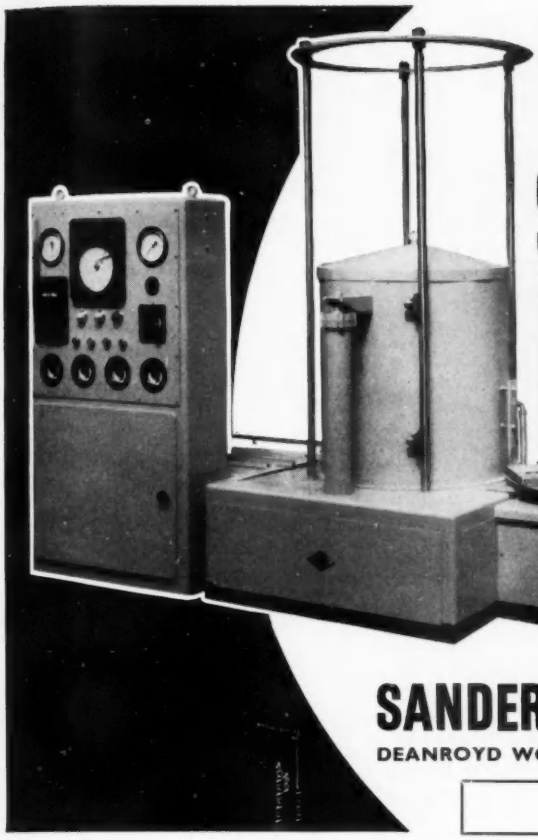

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THIS NEW

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type **V.B.**

has been specially designed for the setting of acrylic sliver for bulking of acrylic yarns and the setting of all types of synthetic yarns.

Its entire operation is fully automatic and can be set to repeat indefinitely or to make single processing cycles.

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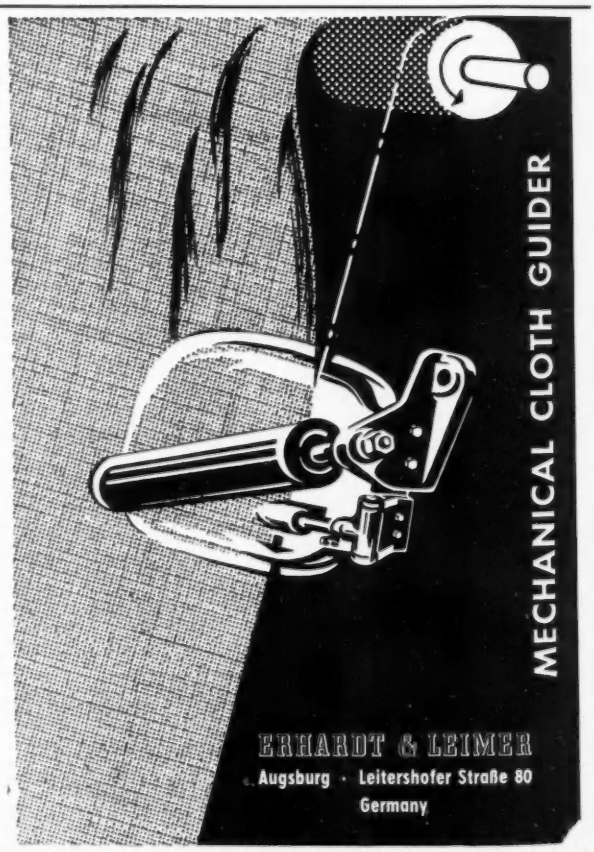

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All Fitments have locking devices and are instantly interchangeable.

Its powerful suction makes it ideal for cleaning Textile machinery thereby speeding production by reducing stops to a minimum. All models may be coupled to machines as extractor units or can be used as powerful blowers.

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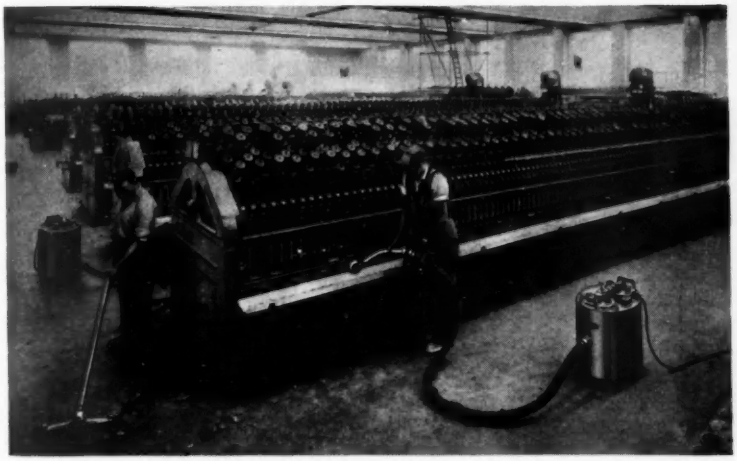

Illustration shows Tellus F.120 cleaning the floor and textile machinery.

STAND D.2709 INTERNATIONAL TEXTILE EXHIBITION, MANCHESTER

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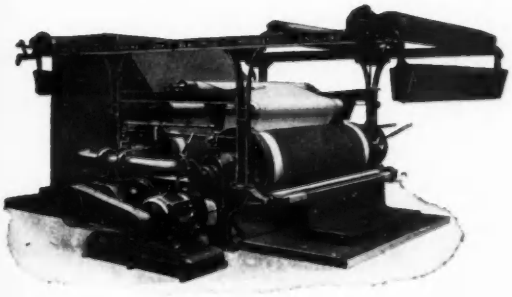
BLOWING AND STEAMING OR DECATIZING MACHINE WITH 24" DIAMETER ROLLERS



DOUBLE ROLLER MACHINE
Can also be supplied with one roller only

Suitable for Woollens, Worsteds, Felts, Silks, Rayons, Knitted Fabrics, etc.

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NEW TRUMETER CLOTH-MEASURING MACHINE.

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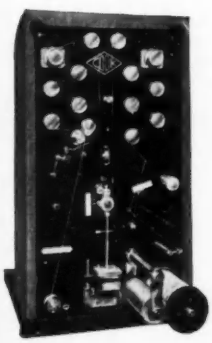

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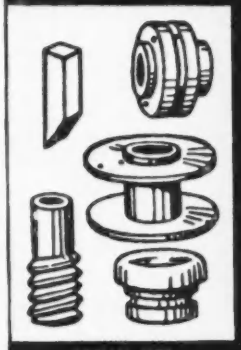

ACTUAL SIZE

THOMPSONS FOR TEXTILE TURNINGS IN WOOD,

ALSO **DOBBY LAGS & PEGS**

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GRAMS "TURNWOOD CROSSHILLS"

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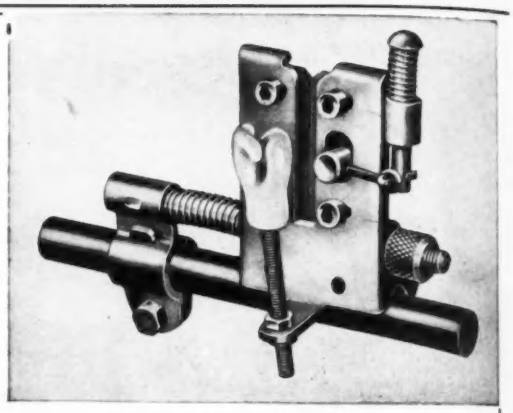

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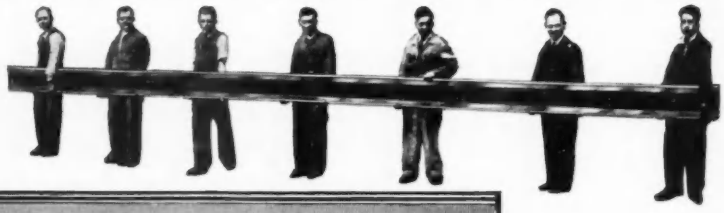

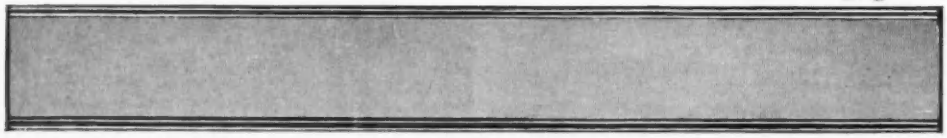

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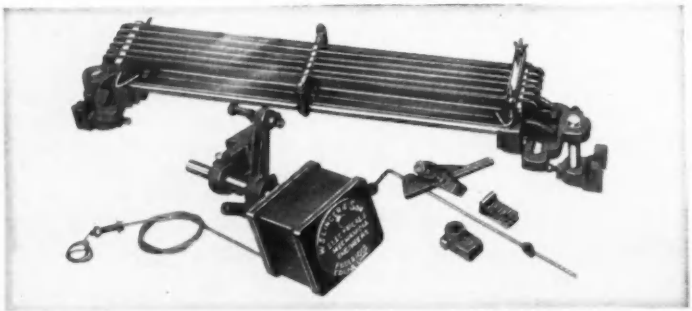

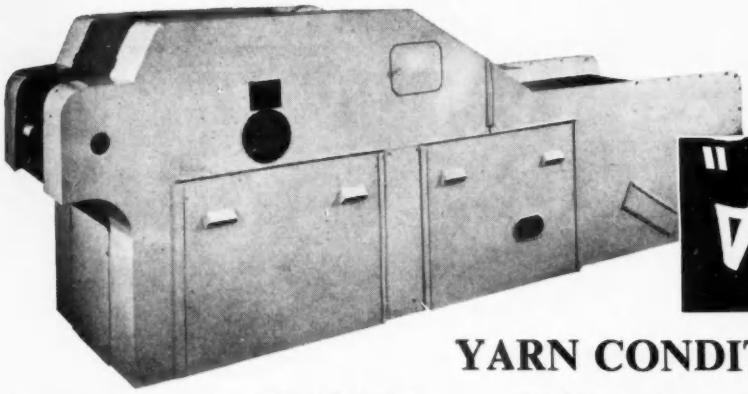

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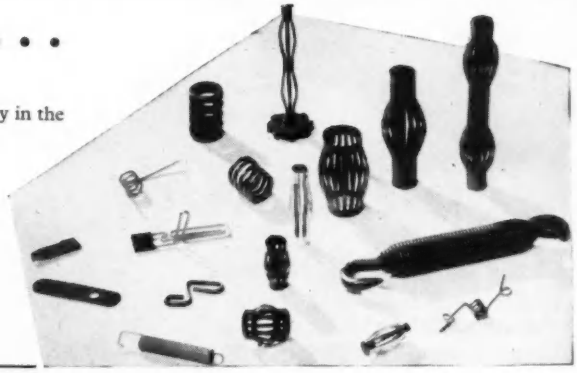

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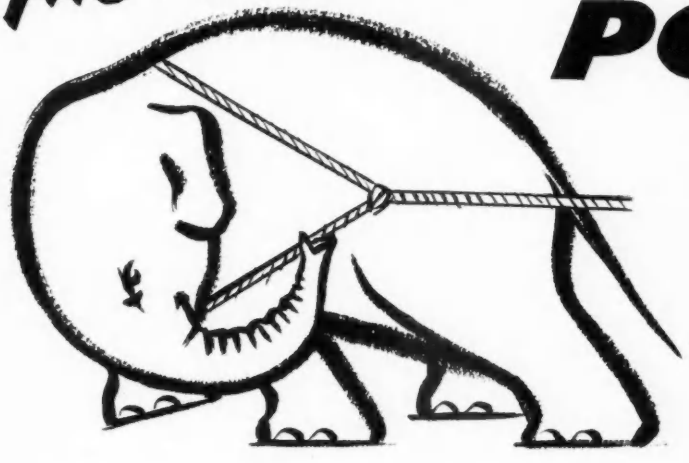

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Index to Advertisers

Advertisement pages are numbered at the bottom of each page, as distinct from literary pages which are numbered at the top of each page.

Adolff, Emil 11
Airey, Robert & Son Ltd. 104
Allspeeds Ltd. 45
Aluminium Bronze Co. Ltd. 86
Angus, George & Co. Ltd. 8, 9
Appleby, Joseph Ltd. 57
Armstrong Cork Co. Ltd. 39
Arundel, Coulthard & Co. Ltd. 16, 17
Aspinall, A. E. Ltd. 32, 111, 115
Associated Lead Manufacturers Ltd. 72
Ateliers, Louis Julien 43
Audley Spinning & Manufacturing Co. Ltd. 70

Bailey, James (Engineers) Ltd. 109
Balmes (England) Ltd. 50, 51
Bentham, F. H. Ltd. 110
Benton & Stone Ltd. 18
Birfield Industries Ltd. 71
Blakelys Textiles Ltd. 114
Bodden, William & Sons Ltd. 98
Boettcher, H. 58, 76
Bound Brook Bearings Ltd. 71
Boyd, J. & T. Ltd. 94
British Picker Ltd., The 87
Broadbent, Thomas & Sons Ltd. 92
Butterworth & Dickinson Ltd. 75

Carr, F. W. & Son Ltd. 103
Carter Gears Ltd. 30
Carter, H. R. & Sons Ltd. 6
Casablancas High Draft Co. Ltd. 78
Chadwick Machine Co. Ltd. 33
Cheetham, H. & Co. (Machines) Ltd. 113
Churchfields Spring Co. Ltd. 110
Clancey, G. Ltd. 108
Combined English Mill Ltd. 14, 15
Cook & Co. (Manchester) Ltd. 111
Crabtree Bros. (Waterside) Ltd. 88
Crabtree, David & Son Ltd. 27
Craig, A. F. & Co. Ltd. ..... Inside Back Cover
Crepe Sizes Ltd. 115
Crofts (Engineers) Ltd. 80, 81

Dalglish, John & Sons Ltd. 44
Dayton Rubber Co. Ltd. 7
Dodd, S. & Sons Ltd. 99
Drytester Ltd. 106
Durrant, George & Sons Ltd. 89

Eadie Bros. & Co. Ltd. 95
Ellison, George Ltd. 91
Erhardt & Leimer Ltd. 108
Erskine, Heap & Co. Ltd. 10
Evertaut Ltd. 102

Fairbairn, Lawson, Combe, Barbour Ltd. 38
Farmer Norton, Sir James & Co. Ltd. 49
Fearnehough, W. Ltd. 103
Fischer, George Ltd. 73
Fleissner Ltd. 76
Fletcher Miller Ltd. 63
Formica Ltd. 5
Foxwell, Daniel & Son Ltd. 101
Frost, William & Sons Ltd. 68

Genkinger, Hermann 76
Gilbos, S.p.r.l. 13
G. W. B. Furnaces Ltd. 52

Hall & Kay Ltd. 64
Hampson, W. (Oldham) Ltd. 98
Harbens Ltd. 3
Hardaker, John T. Ltd. 1
Harris, F. & R. M. Ltd. 114
Hattersley, George & Sons Ltd. 34
Hattersley, Pickard & Co. Ltd. 100
Heath, G. H. & Co. Ltd. 42
Heaton, Arthur & Co. Ltd. 116
Hindle, Son & Co. Ltd. 28
Holt, Thomas Ltd. 40
Hunt & Moscrop Ltd. 12

Imperial Chemical Industries Ltd. 84
Incandescent Heat Co. Ltd. 21

Jones Textilaties Ltd. 90
Julien, Tuberies Louis, S. A. 43

Keay, Thomas C. Ltd. 101
Kenyon, William & Sons Ltd. 46
Knowles, Peers Ltd. 114
Kovo Ltd. 31

Lees, Abel & Sons Ltd. 98
Light Alloy Construction Ltd. 48
Lloyd, R. A. (Rochdale) Ltd. 41
Lodge Plugs Ltd. 85
Lupton Bros. Ltd. 4

Macart Textiles (Bradford) Ltd. 31, 77
Malcolm Rubber Co. Ltd. 90
Manchester Metal Works Ltd. 112
Mather & Platt Ltd. 26
Matterson & Sons Ltd. 104
Maynard, Robert S. 13, 23
Metcalf, George & Co. Ltd. 112
Metropolitan Vickers Electrical Co. Ltd. 74
Meynell & Sons Ltd. 65
Middleton Sheet Metal Works Ltd. 53
Mills, William Ltd. 47
Mirlees, Watson Co. Ltd. 95
Moore & Avery Ltd. 111
Morel, Freres, S.p.r.l. 23

Northern Mill Supply Co. 24

Padley & Venables Ltd. 56
Permoglaze Ltd. 108
Platt Bros. (Sales) Ltd. 54, 55
Platt, J. W. & H. Ltd. 105
Prince-Smith & Stells Ltd. 19

Ransome & Marles Bearing Co. Ltd. 83
Revol Ltd. 22
Riley, T. W. (Rochdale) Ltd. 60
Ryder, Thomas & Son Ltd. 2

Sanderson & Co. (Textile Engineers) Ltd. 107
Schlumberger & Cie Ltd. 6
Scholten's, W. A. 78
Sellers & Co. (Huddersfield) Ltd. 82
Sintered Products Ltd. 113
Sistig, Leo 58
Slinger, W. & Son 112
Societe Alsacienne De Construction Mecaniques 77
Spaleck, Max G.m.b.h. 106
Spencer & Halstead Ltd. 25
Stanvix Manufacturing Co. Ltd. 53
Staubli Bros. & Co. 115
Steatite & Porcelain Product Ltd. 24
Stephens, Ira Ltd. 102
Stubbs, Joseph Ltd. ..... Outside Back Cover
Sulzer Bros. Ltd. 69
Sykes & Brookes Ltd. 108

Tatham, Joseph Ltd. 114
Tellus Super Vacuum Cleaner Ltd. 109
Tendlow, M. J. 103
Textile Accessories Ltd. 29
Textile Industrial Components Ltd. ..... Inside Front Cover
Thomas, Geo. & Co. Ltd. 89
Thornton, G. W. & Sons Ltd. 59
Thompson, W. & J. R. (Woodturners) Ltd. 112
Threfall, Charles Ltd. 105
Tomlinsons (Rochdale) Ltd. 93
Tonge Dveing Co. Ltd. 42
Trumeter Co. Ltd. 110
Tufnol Ltd. 96, 97

Ulamin Light Metal Co. (1954) Ltd. 100
Ultrasonics Ltd. 67
Uttley, F. & Son Ltd. 61

Veeder-Root Ltd. 35

Wadsworth & Co. Ltd. 114
Walker, P. M. & Co. (Halifax) Ltd. 107
Walker, Thomas & Son Ltd. 62
Westmorland Spindle Co. Ltd. 20
W.H.K. Products Ltd. 110
Whiteley, E. Gordon Ltd. 36
Whiteley, William & Sons Ltd. 37
Whitin Machine Works 32
Wright, Hargreaves Engineering Co. Ltd. 66

Zell Machinenfabrik 106
Zellweger Ltd. 59

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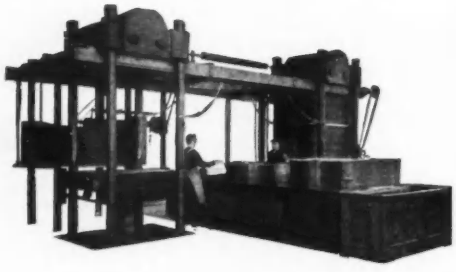

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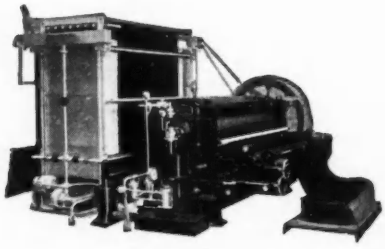

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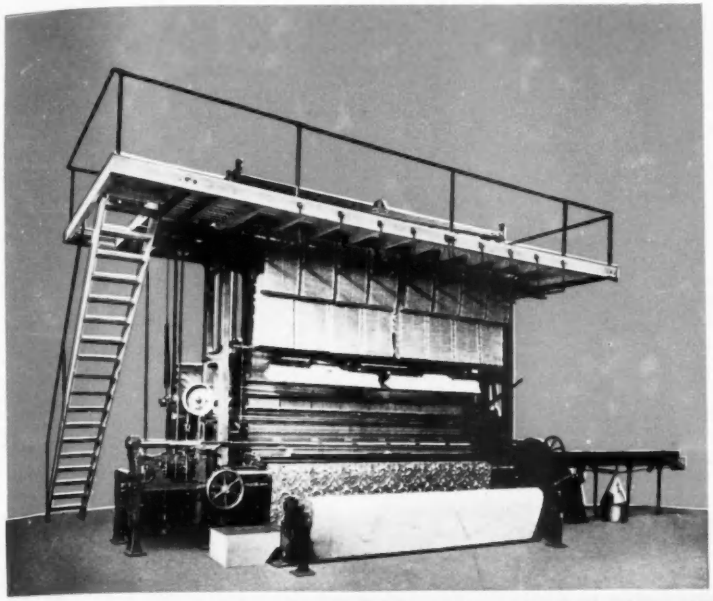

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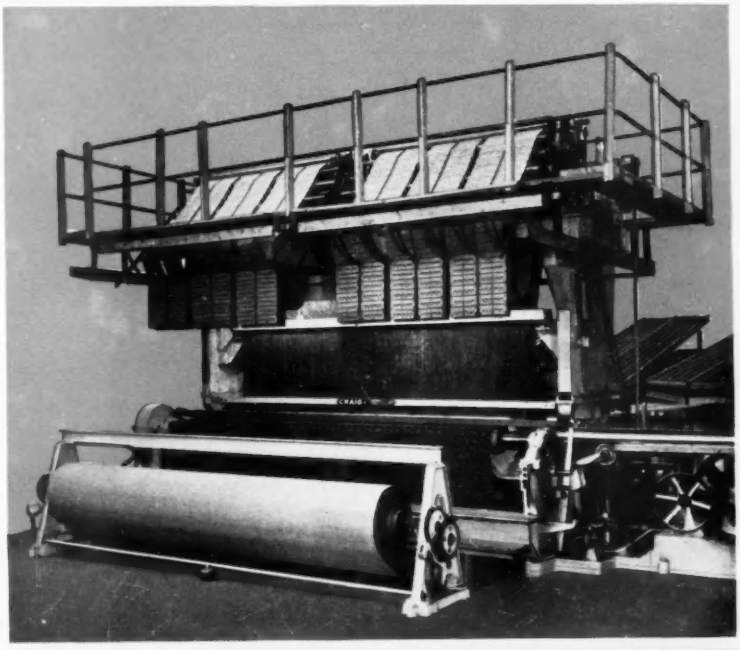

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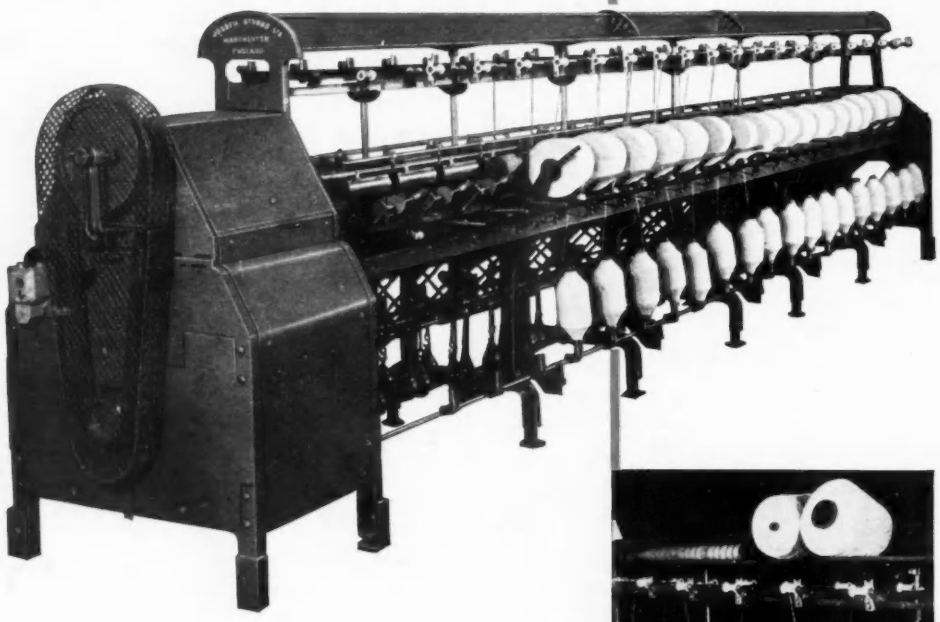

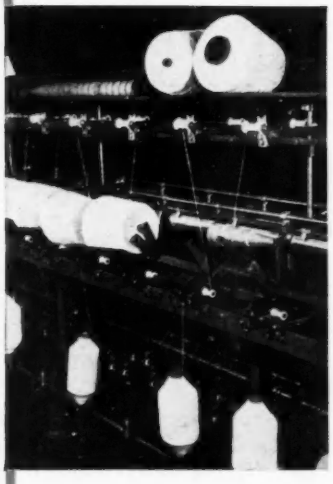

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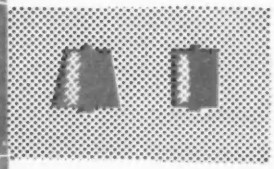

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